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Guidelines:

Identifying, Serving, and Educating Children and Youth with Autism

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MESSAGE FROM THE SUPERINTENDENT

The North Dakota *Guidelines: Identifying, Serving and Educating Children and Youth with Autism* represents a collaborative effort and commitment on behalf of the Department of Public Instruction, Department of Human Services and the state Autism Task Force. I know and appreciate their efforts; which have been crucial to the successful development of these guidelines.

Autism is a complex developmental disability that affects an individual in the areas of social interaction and communication. We know that statistics from the US Department of Education and other governmental agencies provide evidence that autism is growing yearly at an ever increasing rate. I understand that it is four times more prevalent in boys than girls.

The document provides practical and useful guidelines based on a sophisticated and rigorous analysis of the needs of young children. It is intended to be a valuable resource to help make informed decisions with respect to assessment and intervention for young children with autism.

Dr. Wayne G. Sanstead
Superintendent of Public Instruction

MESSAGE FROM THE EXECUTIVE DIRECTOR

The developmental disability known as autism affects 1.5 million Americans and several thousand North Dakotans. Tapping into quality child development and special education programming, as well as other supportive services can positively impact children affected by autism and their families.

The North Dakota *Guidelines: Identifying, Serving and Educating Children and Youth with Autism* was developed by the Department of Human Services, the Department of Public Instruction, and families of children with autism to help families and professionals better understand and access services to help children with autism develop to their full potential. This resource combines information from the education and human services systems.

I commend the Task Force that produced this publication, especially the parents who not only saw the need for this resource, but also devoted their time to its development. All Task Force members should be applauded for putting turf issues aside and focusing instead on the needs of children and families. As a result of their efforts, families and professionals can now easily access important information about programs, eligibility requirements, and appropriate interventions.

Carol K. Olson
Executive Director
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PREFACE

The North Dakota Individuals with Disabilities Education Act (IDEA) Advisory Committee and the North Dakota Interagency Coordinating Council (NDICC) appointed the Autism Task Force in March 2001. The charge to the Task Force was to review and discuss the issues relative to the assessment and education of individuals with autism, including best practice strategies, family support, and early intervention. The charge specifically directed the Task Force to work toward an outcome of providing guidance on these issues from both the North Dakota Department of Human Services (Early Intervention, IDEA Part C) and the North Dakota Department of Public Instruction (Special Education, IDEA Part B). In North Dakota, the Department of Human Services is responsible for providing services to children with disabilities from birth to age three, and the Department of Public Instruction is responsible for providing educational services to children and youth with disabilities from age three through 21. Developing one guidance document that meets the needs of both Departments was a unique aspect of this activity and a unique challenge for the Task Force.

Specific responsibilities outlined for the Autism Task Force members included a review of current research and practice through a balanced perspective, production of recommended guidelines and resources to be presented to the two state agencies, and general recommendations regarding teacher training issues. Final recommendations and draft guidelines were presented to the North Dakota IDEA Advisory Committee and the North Dakota Interagency Coordinating Council (NDICC) on December 5, 2002.

This document, *Guidelines: Identifying, Serving, and Educating Children and Youth with Autism*, is the result of the work of the Autism Task Force with final editing and approval by the Department of Human Services and the Department of Public Instruction staff members. It is intended to be a concise description of the eligibility requirements and procedures that should be followed in North Dakota when determining whether a child or youth has autism and is in need of support services. The *Guidelines: Identifying, Serving, and Educating Children and Youth with Autism* also provides program information and resources for making decisions about appropriate interventions and services for supporting the development of children and youth with autism.

The Autism Task Force found it particularly challenging to decide on the best terminology to use. In recent years, parents and service providers have observed an increase in the number of children who are diagnosed with autism, and in many instances, an increase in the number of children who present similar behavioral characteristics but for whom the specific identification of autism does not fit. Within the professional field a new term, Autistic Spectrum Disorder (ASD), is emerging to refer to the wider array of characteristics presented, but this term is not yet recognized as an "official" disability category. The first section of this document provides a brief discussion of ASD and the rationale for the final decision to use "autism" as the term for these Guidelines.

The role of the child's parents and family is crucial for early identification and successful implementation of services. One section specifically addresses parent and professional collaboration and includes strategies for initiating and supporting this essential family involvement.

The *Guidelines: Identifying, Serving, and Educating Children and Youth with Autism* is a collaborative effort between the North Dakota Department of Public Instruction (Special Education, IDEA Part B) and the North Dakota Department of Human Services (Early Intervention, IDEA Part C). Both agencies gratefully acknowledge the involvement of the members of the Autism Task Force for their assistance in the development of this document. The Autism Task Force included the following members:

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Special appreciation is extended to Carol Massanari and Catherine Benitz from Mountain Plains Regional Resource Center, an Office of Special Education Programs (OSEP) funded project, for their technical assistance. Also, special acknowledgment is given to the states of Minnesota, California, and Nebraska for the use of their documents, which provided information and formatting examples used in the development of these Guidelines.

The ***Guidelines: Identifying, Serving, and Educating Children and Youth with Autism*** was jointly produced and funded by the Office of Special Education, Department of Public Instruction and the Disabilities Services Division of the Department of Human Services.

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TERMINOLOGY

Autism is a life-long, nonprogressive developmental disability. Autism results from non-specified impairment to normal brain development and may have multiple and overlapping causes. Autism is a disability characterized by impairments in social interaction, communication, and the capacity for imaginative and symbolic thinking resulting in exaggerated and stereotyped interests, behaviors, and activities. It is presumed to be present from birth and is always apparent before the age of three. The specific cause of autism is unknown.

Fact . . .
Autism is neither an illness nor a disease and is not contagious.

Autism affects an individual's ability to communicate, understand language, play, and interact with others. The severity of impairment in each of these domains varies along a continuum and the particular signs of impairment may be very diverse. Thus, those with autism may appear quite different from each other with respect to sensory stimuli, the regulation of attention, behavioral and emotional self-control, activity level, attachment to others, resistance to change, and cognitive functioning. Because of the diversity of characteristics and functioning shown by those with autism, professionals in the field have begun to use the term Autistic Spectrum Disorder (ASD).

ASD is an increasingly popular term that refers to a broad definition of autism including the classical form of the disorder as well as closely related disabilities that share many of the core characteristics. Some mental health references use the term Pervasive Developmental Disorder (PDD) to describe the same condition.

Although the classical form of autism can be readily distinguished from other forms of ASD, the terms autism and ASD are often used interchangeably. However, ASD has not been included as a disability classification for special education under the Individuals with Disabilities Education Act (IDEA). Therefore, ASD does not appear as a disability category for eligibility under IDEA in North Dakota. Early Intervention Programs (Part C of IDEA) use an eligibility determination for developmental delay or high risk and thus avoid the need to use a disability categorical label. Mental Health programs use the Diagnostic and Statistical Manual of the American Psychiatric Association; Fourth Edition (DSM–IV, 1994) to compose a diagnosis, under the category of "Pervasive Developmental Disorder".

The DSM-IV manual, used by physicians and mental health professionals, is a guide to diagnosing disorders. In the 1994 edition, five disorders are identified under the category of Pervasive Developmental Disorders (PDD). Agencies and professionals in fields, other than early intervention and education, use these definitions to formulate a diagnostic approach to services.

To understand how the disorders differ and how they are similar, it is useful to look at the DSM-IV descriptions for the full criteria of each disorder. Therefore, a brief synopsis has been provided:

1. *Autistic Disorder* sometimes referred to as early infantile autism or childhood autism, is four times more common in boys than in girls. Individuals with Autistic Disorder have a moderate to severe range of communication, socialization, and behavior problems. Many with autism also have mental retardation.

2. *Rett's Disorder* is diagnosed primarily in females. In children with Rett's Disorder, development proceeds in an apparently normal fashion over the first six to 18 months, at which point parents notice a change in their child's behavior and some regression or loss of abilities, especially in gross motor skills such as walking and moving. This is followed by an obvious loss in abilities such as speech, reasoning, and hand use. The repetition of certain meaningless gestures or movements is an important clue to diagnosing Rett's Disorders.

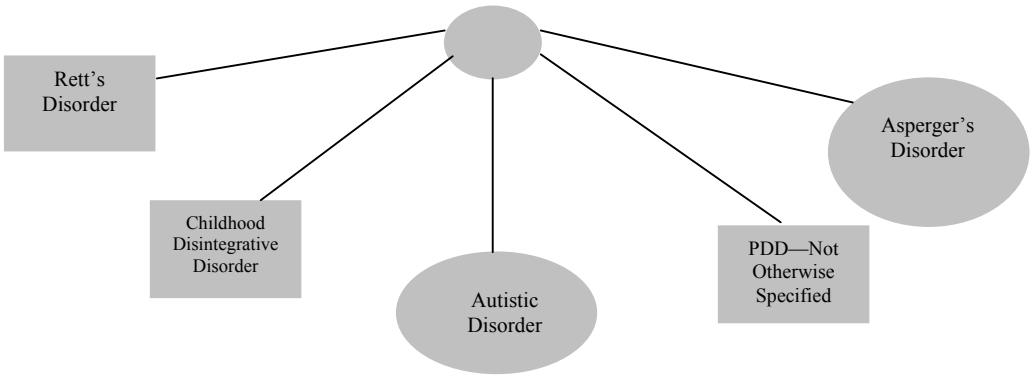
PDD refers to a category of disorders—and is also used as a diagnostic label.

3. *Childhood Disintegrative Disorder* an extremely rare disorder, is clearly apparent regression in multiple areas of functioning (such as the ability to move, bladder and bowel control, and social and language skills) following a period of at least two years of apparently normal development.

4. *Asperger's Disorder* is a developmental disorders characterized by a lack of social skills, difficulty with social relationships, poor coordination and concentration, and a restricted range of interests but normal intelligence and adequate language skills in the areas of vocabulary and grammar. However, the individual may have difficulty understanding the subtleties used in conversation, such as irony and humor. Asperger's Disorder appears to have a somewhat later onset than Autistic Disorder, or at least it is recognized later.

5. *Pervasive Developmental Disorder—Not Otherwise Specified* (NOS) is used when there is a severe and pervasive impairment in the development of social interaction or verbal and nonverbal communication skills or when stereotyped behavior, interests, and activities are present but the criteria are not met for a specific disorder.

Pervasive Developmental Disorder



The Autism Task Force was concerned about creating confusion with the variations in terminology and wanted to use terms consistently in this document. As previously stated, ASD has not been recognized by IDEA regulations at the time of this writing; therefore, the Task Force chose to use the terminology of "autism". The program considerations and interventions addressed in these Guidelines may also be appropriate for a child or youth with similar behavioral characteristics.

Some children and youth with autism, and those presenting similar behavioral characteristics, vary widely in ability and personality. Some will display signs of mental retardation while others are extremely gifted in their intellectual and academic accomplishments. While many children and youth with autism prefer isolation and tend to withdraw from social contact; others show high levels of affection and enjoyment in social situations. Some individuals with autism will appear lethargic and slow to respond, but others are very active and seem to interact constantly with preferred aspects of their environment.

Ensuring appropriate interventions and services requires a comprehensive developmental and educational evaluation that identifies a child or youth's strengths and weaknesses. Based on the results of the evaluation, a determination for eligibility is made and appropriate intervention and services are developed. For educational purposes, when evaluation results do not meet the special education eligibility criteria for autism, it is possible the child or youth may still be eligible for special education services under related services or another disability. For example, a child or youth with Asperger Disorder, a diagnosis included under ASD but not considered to be autism, might be eligible for special education services under other disability categories such as speech or language.

The Educational Definition of Autism

Autism—As defined by IDEA (Individuals with Disabilities Education Act) CFR.300.7 (c)(1)(i)

Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movement, resistance to environment change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance.

CRITERIA FOR SERVICE ELIGIBILITY

Eligibility for services for children with autism is determined by different agencies depending on the age of the individual and the types of services needed. In North Dakota, the services for infants, toddlers (birth to age three), and families are provided through the Department of Human Services, Developmental Disabilities Early Intervention Program. Educational services are provided for children ages three through 21 by local education agencies (public/private schools). Community support for individuals of all ages may be provided through Developmental Disabilities (DD) agencies and public and private mental health providers. Criteria for eligibility will differ for each agency and an overview is provided in these Guidelines.

Eligibility Criteria for North Dakota Early Intervention Program (ages birth to age three)

Recent research and advances in screening and assessment tools are making it possible for earlier identification of young children with autism. However, diagnosticians are sometimes reluctant to issue a formal diagnosis before the age at which complex language and social skills are expected to emerge. For this reason, diagnosis often does not occur until sometime between two and three years of age.

To be eligible for Developmental Disabilities Case Management, a child birth to age three must meet one of the following criteria:

1. The child is performing 25 percent below age norms in two or more areas.

    a. Cognitive development;
    b. Gross motor development;
    c. Fine motor development;
    d. Sensory processing (hearing, vision, touch);
    e. Communication development (expressive or receptive);
    f. Social or emotional development; or
    g. Adaptive development.

2. The child is performing 50 percent below age norms in one or more areas.

    a. Cognitive development;
    b. Physical development, including vision and hearing;
    c. Communication development (expressive and receptive);
    d. Social or emotional development; or
    e. Adaptive development.

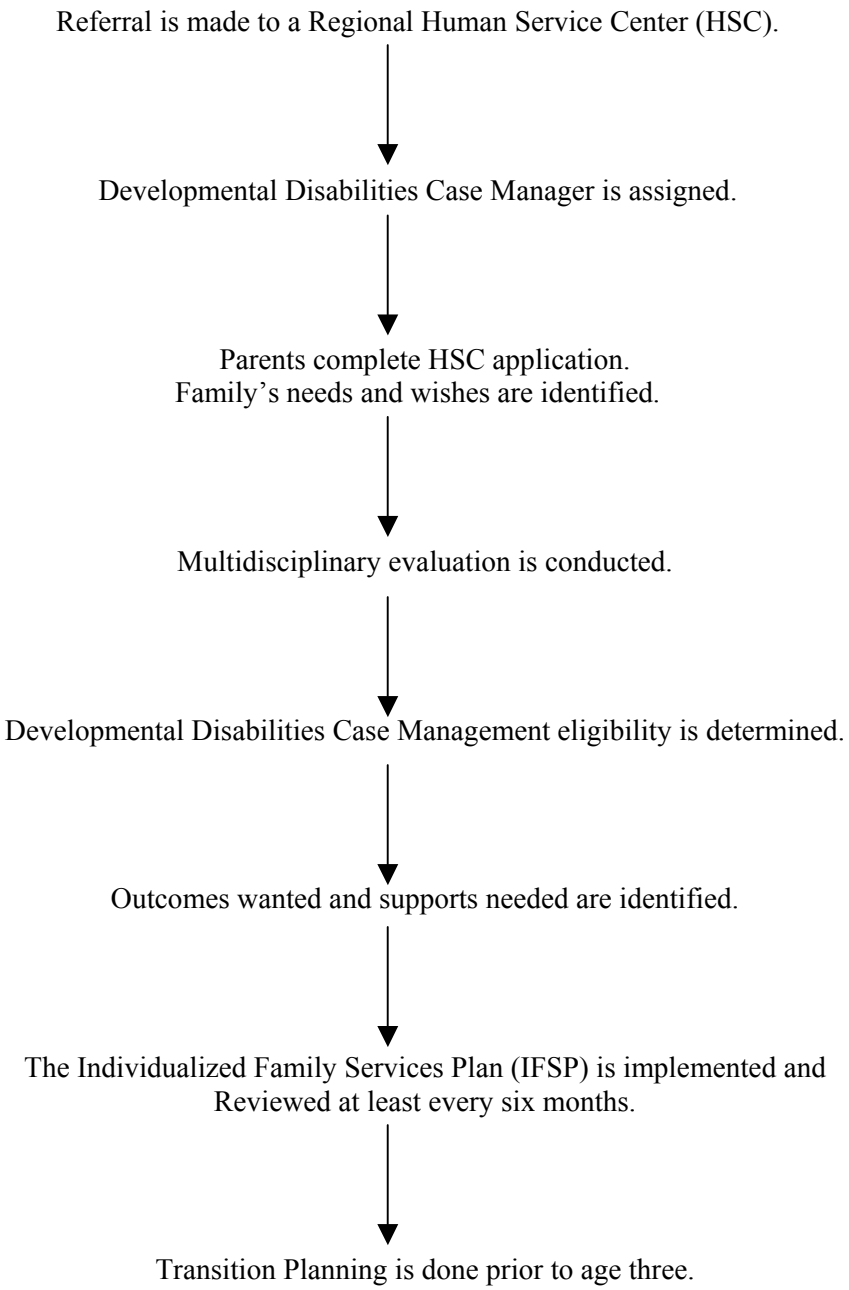
3. The child has a diagnosed physical or mental condition that has a high probability of becoming developmentally delayed.

4. Based on informed clinical opinion, which is documented by qualitative and quantitative evaluation information, the child has a high probability of becoming developmentally delayed.

The evaluation to determine a developmental delay must be completed in all developmental areas.

Additional information including developmental history, parental observations, and medical information will assist the team in the consideration of developmental delay.

North Dakota Early Intervention
Process for Children Birth to Age Three



Eligibility Criteria for Special Education Services (ages three through 21)

A multidisciplinary team determines eligibility of children and youth ages three through 21 for special education services in North Dakota schools. The team shall determine that a student is eligible for special education services in the area of autism if the student demonstrates a ***total*** of six (or more) features from categories #1, #2, and #3, with two from category #1 ***and*** at least one or more from ***each*** categories #2 and #3, totaling six overall features. The assessment team may choose to use a medical diagnosis of autism if the disability significantly impacts educational performance, however a medical assessment is not required.

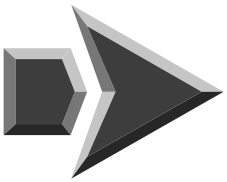
An educational evaluation must address the features from all three categories and must document evidence that the student demonstrates behaviors that are atypical for the student's developmental level. At least two different assessment tools must be used and may include; structured interviews with parents, autism checklists, communication and developmental rating scales, functional behavior assessments, application of diagnostic criteria from the current Diagnostic and Statistical Manual (DSM-IV), informal and standardized assessment instruments, or cognitive testing. In addition, the multidisciplinary team must determine that the child's educational performance is adversely affected.

Category #1 Features:
Atypical development of social competence. The child or youth displays extreme difficulties in social relationships. (Two or more behavioral indicators required.)

- Has limited joint attention and limited use of facial expressions directed toward others.
- Does not show or bring things to others to indicate an interest in the activity.
- Demonstrates difficulties in relating to people, objects, and events.
- Has a gross impairment in ability to make and keep friends.
- Shows significant vulnerability and safety issues due to social naiveté.
- Appears to prefer isolated or solitary activities.
- Misinterprets others' behaviors and social cues.
- Demonstrates gross impairments of solitary, imaginative, cooperative, and reciprocal play.

Category #2 Features:
***Disturbance of communication*.** The child or youth displays a qualitative impairment in communication. (One or more behavioral indicators required.)

- Has absence, loss, or delay of spoken language.
- Includes echolalia, mechanical, or stilted speech.
- Has little response to language.
- Exhibits pronoun reversals.
- Demonstrates difficulty expressing emotions.
- Has impairment in the use/interpretation of nonverbal communication, facial expression, or gestures.
- Uses language in an unconventional way.
- Uses odd production of speech including intonation, volume, rhythm, or rate.
- Uses repetitive or idiosyncratic language or has inability to initiate or maintain a conversation when speech is present.



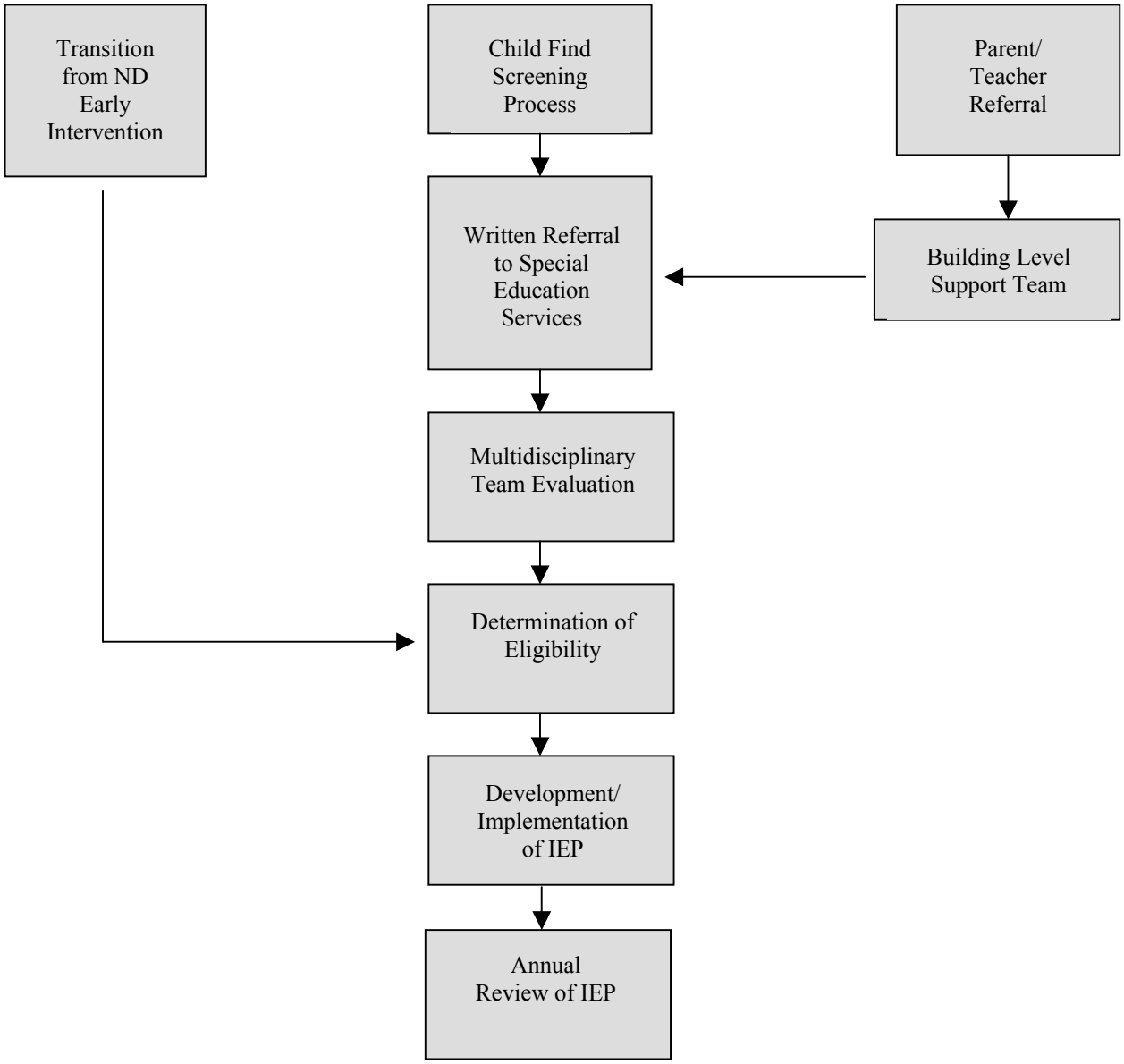
Category #3 Features:

Atypical range of interests, patterns of behavior, and/or responses to sensory stimuli.

The child or youth displays a narrow encompassing preoccupation with objects, sensations, rituals, or routines. (One or more behavioral indicators required.)

- Exhibits atypical, stereotypical, or repetitive responses demonstrating distress or resistance to changes in activity.
- Demonstrates overreaction or underreaction to sensory stimuli (which may include sight, smell, hearing, taste, touch, balance, body awareness, and pain).
- Uses rigid or rule-bound thinking such as an intense, focused preoccupation with a limited range of play, interests, or conversation topics.
- Shows lack of true imaginative play versus reenactment.
- Has difficulty generalizing skills from one setting to another.
- Insists on following routines or rituals, which may be complex.
- Demonstrates repetitive thinking and actions and is preoccupied with certain sounds, words, phrases, ideas, or items.
- Has excellent memory for visual detail, facts, or rote lists.
- Focuses on small details and demonstrates little awareness of critical elements of information.

ND Special Education Process for Children and Youth Ages Three Through 21



IDENTIFICATION PROCESS

Early identification of children with autism is critical. Educational planning, provisions for family supports, and delivery of appropriate interventions should begin as early as possible. The first signs that a child may have autism are often concerns of parents, caregivers, or a physician. These warning signs may include the following:

- Atypical attachment in infants and toddlers,
- Atypical development of social competence,
- Disturbance of communication,
- Atypical range of interests,
- Unusual patterns of behavior, or
- Atypical responses to sensory stimuli.

Identification of Autism in Children Birth to Age Three

The early years (birth to age three) are crucial for developing language and social behaviors for all children, especially children with autism. Early intervention can contribute to improvement in sensory-motor development, language, social development, behavior, and family relationships. The following information can assist providers in identifying young children suspected of having autism:

Social Interactions/Reciprocity

- May seem indifferent to affection and may not develop typical attachment behavior with parent and caregiver.

Part C of IDEA includes children ages birth to age three, and services are provided through the ND Department of Human Services.

Young children with autism are *less likely* to

- Respond to social overtures,
- Smile responsively (e.g., in response to praise or smile),
- Reciprocate affection (e.g., return a hug),
- Establish eye contact during interactions,
- Repeat actions that produce attention or laughter (e.g., "show off," attempt to please parents), or
- Imitate the actions of others (e.g., wave good-bye).

Communication

Young children with autism are *less likely to*

- Use gestures to communicate (e.g., point to request, shake head "no" to protest),
- Communicate to direct another person's attention (e.g., hold up an object to show, or point to indicate interest),
- Use eye contact during communicative acts, or
- Understand language or gesture used by others.

Restricted/Repetitive Activities

Young children with autism are *less likely* to

- Engage in a broad repertoire of functional play activities,
- Create simple play schemes of sequences with toys, or
- Engage in functional play with dolls.

Young children with autism *may*

- Engage in repetitive play activities (e.g., lining up toys, opening and closing doors on toy cars),
- Demonstrate repetitive motor behaviors (e.g., spinning, finger posturing), or
- Develop self-stimulating and self-abusive behaviors.

Sensory Systems

Young children with autism *may*

- Be overly sensitive to certain sounds, textures, tastes, or smells,
- React to movement such as swinging or rocking,
- Not respond to extreme cold or pain, or
- Appear to react as if senses are scrambled (e.g., gag when feeling a certain texture).

Identification Process for Children Age Three through 21

At age three, children may be referred from North Dakota Early Intervention to services provided by a public/private school system. The transition process may involve a Child Find screening or a direct referral, which is then presented to a school's multidisciplinary team (MDT).

Identification, educational planning, and appropriate interventions continue to be essential components in providing a continuum of services for children and youth ages three to 21. Many characteristics and features described with very young children suspected of having autism are similar in nature to those of children and youth entering an educational program in a private or public school system. There may be continued complications with communication, social development, cognitive development, sensory and motor development, adaptive functioning, and problem behaviors. However, some characteristics and features may be heightened when responding to educational and social demands. Children and youth ages three through 21 typically have educational programs focusing more on teaching personal independence and responsibility, which can often create confusion and frustration. High levels of stimulation and demands may require a more consistent and structured environment in order for these children and youth to be successful. Their diverse difficulties in communication, social interactions, and atypical behaviors propose unique challenges to educators and families.

A professional with knowledge of autism is an important member of the MDT due to the complexity of this disability and the specialized intervention. The team should also include at least one special education teacher with knowledge in the suspected area(s) of disability.

Part B of IDEA includes children ages three through 21, and services are provided through the ND Department of Public Instruction.

The responsibilities of the team are as follows:

- Develop a Student Profile.
- Formulate assessment questions on the Assessment Plan.
- Obtain written parent consent for tests to be conducted.
- Complete the individualized assessments.
- Prepare an Integrated Written Assessment Report (IWAR) summarizing observational data and assessment results that will determine if the child or youth has a disability that adversely effects education and is in need of special education.

Determination of a Disability

Eligibility is determined according to the criteria established by the North Dakota Department of Public Instruction. The criteria established for the category of autism are found on pages eight and nine of these Guidelines. However, if a child or youth is found ineligible based on the criteria for autism they may be found eligible for special education services under a different disability. For example, a child or youth with Asperger's Disorder may be found eligible under other disability categories such as speech or language.

Once eligibility for a disability is determined through the evaluation process (See *GUIDELINES: Evaluation Process*), the Individualized Education Program (IEP) must be developed within 30 days to meet the special education needs of the child or youth. The IEP guides the development of the special education program and services. (See *GUIDELINES: Individualized Education Program Planning Process.*) If a child or youth is found not to have a disability under IDEA, it may be necessary for the team to consider the need for accommodations in the school setting under Section 504 of the Rehabilitation Act.

The IEP should tailor the education to the child, not the child to the education.

Identification of Supplemental Support Services

Consideration of family needs regarding additional medical or community support services could be a part of the formal IEP discussion and a range of service options can be expanded through interagency collaboration. Positive outcomes for children and youth with autism are a direct result of intensity and consistency of interventions across home, school, and community environments.

Children and youth with autism and their families may benefit from support service through the North Dakota Department of Human Services. Referrals can be made to Regional Human Service Centers or County Social Services to access supports such as those listed below:

- Developmental Disabilities Case Management,
- Children and Family Services (foster care, child care providers),
- Children's Special Health Services (medical diagnosis and treatment),
- Mental Health and Substance Abuse (family members and children),
- Vocational Rehabilitation and Job Training, or
- Medical Assistance.

"Children with autism sometimes challenge us to re-examine our expectations and commitment to individualize and, most of all, our ability to think outside the box." (Parent)

PARENT-PROFESSIONAL COLLABORATIONS

Optimum success for a child or youth with autism is apparent when there is collaboration between the family and professionals. A collective and shared process between professionals and parents can contribute toward the development of a comprehensive intervention plan. Each party will be expected to share their expertise and resources while respecting each other's efforts and knowledge.

Building trust and mutual respect over time will allow a type of collaboration that extends communication beyond the traditional parent-teacher or parent-professional models. Increased knowledge and access to information about autism creates situations in which parents and professionals can learn and experience innovative methods of interventions.

A supportive process based upon a commitment to open communication and child advocacy can result in high expectations for children with autism. Foundations to successful collaboration are as follows:

- Honesty between parents and professionals regarding the child's long-term goals. These long-term goals guide professional recommendations and parental expectations.

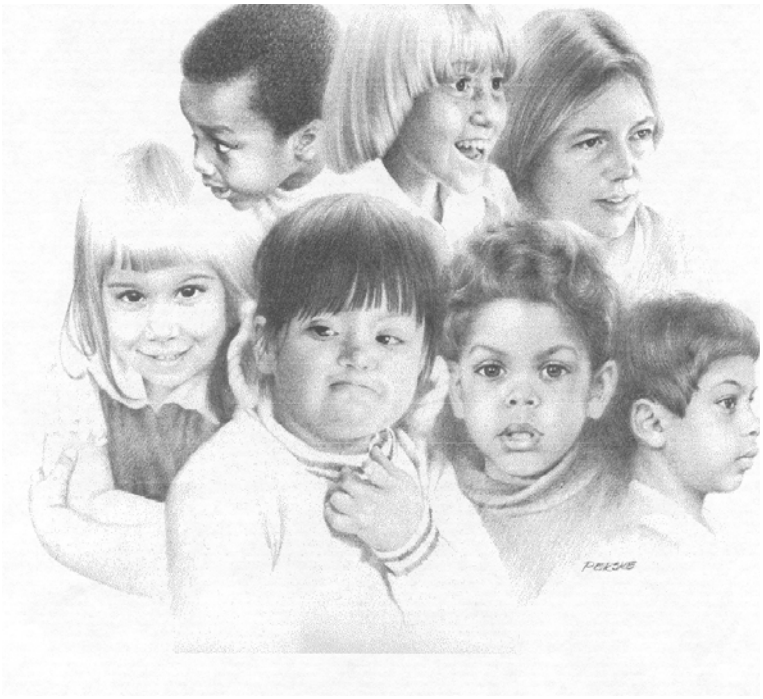
- Respect between parents and professionals regarding their levels of knowledge and experience with acceptance to sharing and receiving information.

- High-quality training of parents and professionals with frequent and consistent follow-up. This allows each party the skills necessary to help the child make gains, create strategies to solve problems, reinforce appropriate behaviors, and generalize new skills across domains and settings.

The involvement of parents of children with autism can occur at multiple levels, including school or community advocacy, participation as team members, and agents of educational changes for their child. In order to carry out their responsibilities, parents need access to accurate information about autism and associated characteristics combined with information about appropriate services and technologies. They also need timely information about assessments, educational plans, and available resources for their child. This information needs to be conveyed to them in a meaningful way that gives them time for preparation in fulfilling their roles as parents and to be able to contribute as an integral member of the team.

"Sometimes parents are trying to develop realistic dreams for what the future may hold and hope that someday their child will find a way to share the thoughts that seem to lie behind beautiful eyes." (Parent)

The parent or family component of the education and service plans for a child or youth with autism is an important consideration. Early intervention (children birth to age three) requires a family-centered approach. Some program options include strategy training for parent and family involvement while strengthening the importance of their knowledge of autism. Also, opportunities for ongoing consultation, including in-home observations, can support improvements across a variety of environments. Other family centered strategies, such as formalized training and opportunities for parent-to-parent support, are effective ways of sustaining family involvement.



GENERAL CONSIDERATIONS FOR DESIGNING INDIVIDUAL SERVICES

The focus of instruction shifts as children and youth with autism move from early childhood programs to elementary and secondary settings. As children grow, they experience periods of transition that will require alterations in their educational planning. Team discussion and preparation are key components of successful transition planning and organizing.

Over the past several years, significant progress has been made in the care and education of children and youth with autism. Progress can occur when adults involved in the lives of children or youth continuously seek a greater understanding of autism and how it is diagnosed and treated. No single approach is likely to be right for every child. However, there are characteristics of effective instructional programming that can be followed to guide the planning and decision-making of teams.

Children and youth with autism are first and foremost individuals. They have many more similarities to other children and youth than they do differences. Although some individuals with autism present genuine instructional challenges, they learn with appropriate, systematic, and individualized teaching practices.

To provide effective early intervention and education for children and youth with autism, these general considerations should be addressed:

- Ensure that the student is in good health, free from pain and irritation, and in a safe, stimulating, and pleasurable setting.
- Provide structure in the environment with clear guidelines regarding expectations for appropriate and inappropriate behavior.
- Provide tools, such as written or picture schedules, to ensure that the flow of activities is understandable and predictable.
- Base the curriculum on the student's individual characteristics, not on the label of autism. A diagnosis of autism does not indicate what or how to teach.
- Ensure that the individual services and strategies for special education are connected to the general education curriculum.
- Focus on developing skills that will be of use in the student's current and future life in school, home, and community.
- Encourage parents and other family members to participate in the process of assessment, curriculum planning, instruction, and review.
- Plan well in advance for transitions to new educational and community services to design structures and supports for the child.

"The transitions between programs are difficult, and parents often need someone who knows the process and can help them understand the various procedures and paperwork that are needed. And, when multiple agencies are involved, help is needed to coordinate the services." (Parent)

The Individual Family Service Plan (IFSP) for infants, toddlers, and their families and the Individual Education Program (IEP) for children and youth ages three through 21, are the vehicles for identifying and planning appropriate interventions. Educational goals and objectives should be observable, measurable, and related to a child's unique needs. These goals and objectives should be written for a one-year period of time and designed to affect a child's participation across a variety of environments. Goals and objectives need to parallel the areas of strengths and needs identified through the assessment process and defined in the present level of educational performance (PLEP).

Effective practice suggests that on-going measurement of intervention objectives be documented in order to determine whether a child is benefiting from a particular intervention. Every child's response to an intervention program should be assessed after a short period of time with progress monitored frequently and objectives adjusted accordingly.

Areas for consideration in the development of an IFSP or IEP for a child with autism might include the following:

- Social skills to enhance participation in family, school, and community activities,
- Skills in imitation and social initiations and responses to both adults and peers through parallel and interactive play with peers and siblings,
- Expressive verbal and receptive language,
- A functional symbolic communication system,
- Increased engagement and flexibility in developmentally appropriate tasks and play, including the ability to attend to the environment and respond to an appropriate motivational system,
- Fine and gross motor skills used for age appropriate functional activities, as needed,

The IEP/IFSP is individualized and represents the strengths and needs of the child or youth.

- Cognitive skills, including symbolic play and basic concepts as well as academic skills,
- Replacement of problem behaviors with more conventional and appropriate behaviors,
- Independent organizational skills and other behaviors that underlie success in regular education classrooms (e.g., completing a task independently, following instructions in a group, asking for help), and
- Sensory needs addressed through adaptations or interventions for a child's hyper and hypo sensitivities.

Any intervention for a child or youth with autism is, of course, developed through the IFSP/IEP process to meet the individual needs of that child. Considerations of treatment method, frequency, and intensity are made on an individual basis. A variety of public and private supports can be accessed to address the needs of the family and the child in their home and community settings. Following the development of goals and objectives for the child, the methods of intervention and supports must be selected. The special education program, including related services, should be linked to the general education curriculum through a coordinated and consistent programmatic approach that supports the generalization of skills.

Programs that appear to be successful for children with autism in areas such as social engagement, language, coping, and reduction of difficult behaviors have multiple characteristics, including the following:

Consistent data recording and on-going observation are key elements with all methods of interventions.

- An individualized approach is used to select a developmentally appropriate method and level of program.
  - Consider several intervention methods.
  - Remember that no single approach will be right for every child and some children will benefit from multiple approaches.
  - Observe and record data consistently to see what interventions work and consider a different approach immediately if no success.
- The curriculum is organized around normal developmental expectations.
  - Analyze all areas of development and plan activities at the child's level.
  - Design curriculum that is language and communication intensive.
  - Stimulate socialization and play opportunities.
  - Use only functional and meaningful tasks.
  - Teach basic skills before more complex skills.
- A highly structured and neatly organized controlled environment is used.
  - Provide a predictable routine with an individualized schedule.
  - Increase independence through use of concrete clues, including meaningful visual stimuli to help the child figure out what is expected.
- Behavioral intervention may be needed to assist a child in gaining skills and to reduce negative or undesirable behaviors.
  - Use functional behavioral analysis and look for communicative intent of behavior.
  - Plan intervention to acknowledge the communicative intent.
  - Reinforce positive behaviors to reduce negative behaviors.
  - Use replacement behaviors.

"Not one particular approach will work for all children and youth. All are unique individuals with their own strengths and needs." (ND Autism Task Force, 2002)

- Data is recorded to monitor progress and to troubleshoot.
  - Use assessment results as a guide for planning what skills to teach next.
  - Provide data on the success of interventions employed.
  - Consider the outcomes of children with differing profiles in language and cognition.

- Generalization and maintenance of skills are built into the program.

- Opportunities are provided to participate, and be included, in general education classrooms.

- Parent training and family support are critical.
  - Provide education about options for intervention.
  - Ensure that training is culturally acceptable to individual families.

- Collaboration of all team members is needed.

- Related services are included (e.g., speech, occupational therapy, adapted physical therapy, and/or augmentative communication) if needed.

- Ongoing teacher and therapist training are included. Consider what new and experienced personnel need to know.

- Transitional support is provided when the child leaves one program and moves to the next.
  - Teach the skills needed in the next school or program situation and provide needed support for transitions.

- Integration of research and practice is used.
  - Following the progression of children with autism will assist in recognizing contributing factors of successful or less successful outcomes.

"It is important that professionals accept parents where they are. Pushing too hard will put up a boundary that may be insurmountable." (Parent)

Environments

Children and youth with autism are strongly influenced by the environments in which they learn to live, work, and play. A variety of environmental and situational factors influence the behavior of all children and youth. Because these variables may have even greater significance for children with autism, a conscious effort must be made to carefully analyze the child and his or her environment as an on-going component of the instructional process. Teams should take the following physical environmental considerations into account when implementing the IEP/IFSP:

- Physical layout of the classroom, child care center, or home with visually clear areas and boundaries,
- Selected work areas that best lend themselves to that being taught (e.g., consider lighting and sounds that may support learning rather than being distracting to the individual),
- Boundaries needed by the child (e.g., reading may need to be taught consistently on a designated carpet),
- Specific and consistent schedules that allow the child to anticipate and predict activities,
- Visual organization of scheduled activities to allow the individual to use the visual learning modality, which is often stronger than the auditory modality in individuals with autism, and
- Routines that allow the child to carry out daily activities and function in the setting in a systematic and consistent manner.

INTERVENTIONS: APPROACHES AND METHODOLOGIES

Overall, many of the programs designed to support children and youth with autism are more similar than different in terms of levels of organization, staffing, ongoing monitoring, and the use of certain techniques. However, there are genuine differences in philosophy and practice that provide a range of alternatives for parents and professionals considering various approaches. The key to designing an effective program lies in assessing the child's or youth's present level of performance and developing appropriate goals and outcomes with family input and participation. Much more important than the name of the program utilized is how the environment and program strategies allow implementation of the child or youth's goals. Thus, effective services will, and should, vary considerably across individual children depending on age, cognitive and language levels, behavioral needs, educational needs, and family priorities.

The approach that works best for a child or youth with autism is the one that is the most specific in meeting a child's individual needs. An appropriate individual intervention program is achieved by considering the following:

- Developmental strengths, needs, and challenges for each child,
- Individualized learning styles,
- Services needed to support the child's learning,
- Intensity and duration of services,
- Location and arrangement of environments for learning, and
- Social support and opportunities for acceptance by peers.

To focus on only one approach could restrict a child's growth.

Children with autism learn in complex ways. One child may require a more intense level of intervention, whereas the same level of intervention may over-stimulate another child. The reaction, tolerance, or sensitivity to someone's voice or the duration and intensity of touching may vary considerably among children with autism. Their learning needs, like their autistic symptoms, transform as they develop. To focus on only one approach or method of intervention, which might temporarily produce a desired result, could ultimately restrict a child's growth.

Children and youth with autism benefit most when intervention is planned, systematic, individualized, and implemented across settings. Intervention programming across environments is possible through a network of support services. A network of support services can be formed and maintained by the efforts of service providers from a variety of agencies, parent organizations, nonprofit support organizations, advocacy groups, informed professionals in the community, and the school district. Such support services include: parent training, respite care, medical intervention for treatment of hyperactivity and sleep disorders, counseling, and behavior management for aggression or self-injurious behavior.

"While it is important for professionals to keep up with their skills, don't jump on every bandwagon as this may create false hopes and assumes that all children are helped by the same treatment." (Parent)

Behavioral

Applied Behavioral Analysis

Intervention programming that uses a behavior-analytic approach attempts to systematically teach small, observable steps that define a skill. Skills for which the child or youth demonstrates readiness to learn are broken down into small steps. Each step is taught by presenting an external stimulus or instruction. If the child or youth responds correctly, his or her response is followed by a predetermined positive consequence. If a reinforcement assessment has been conducted and a potent reinforcer is discovered for a given child or youth, then that reinforcer functions effectively to strengthen the response.

Applied behavior analysis begins with an instructional orientation. The child or youth with autism desperately needs to learn competencies that are observable and replicatable. Skills selected for teaching should be effective in helping the child or youth to manage his or her environment. The function of the skills selected and taught should be appropriate to the child or youth's age and developmental level. The principal aim of intervention with the child or youth with autism must be to establish an expanding repertoire of meaningful skills that the child or youth can use in daily interactions.

The behavior-analytic approach has extremely important implications for the understanding of problem behaviors as well as for the focus of intervention programs. Components of Applied Behavior Analysis may be used in combination with other approaches.

Pivotal Response Training

Motivation is typically limited in children with *autism* and prevents generalization of learned responses. In Pivotal Response Training (PRT), the intervention goes beyond targeting a single behavior; instead, it focuses on a set of specific procedures that increase responsively to simultaneous multiple stimulus cues. The logic of teaching pivotal target behaviors is that professionals might indirectly affect a large number of individual behaviors. Such an intervention is thought to be more efficient in time and effort required of the child and clinician and also more effective in terms of promoting generalized gains.

Discrete Trial Training/Lovaas

Discrete trial training is a generic term that involves teaching a person to perform a particular activity by breaking it into simpler components, which can then be rehearsed individually and chained into a complex sequence. This teaching strategy is found in Lovaas training although these terms have different origins in the behavioral literature and are not actually the same. Discrete trial training can be used within other educational methodologies as a way of teaching the steps needed in completing sequenced tasks and is particularly helpful for children who have motor planning difficulties.

Behavioral continued

While discrete trial training has been documented as effective in teaching linear, chainable sequences, its efficacy has been questioned when teaching behaviors that by their nature need to be interactive rather than reactive and sequenced. Language and social interaction skills are not necessarily linear, chainable skills.

The Lovaas approach applies discrete trial training into a therapeutic program that includes family participation and one-to-one instruction. This approach is intensive and often begins with remediating speech and language deficits. Later, when the child has learned specific skills for family routines, children are given explicit instruction in how to interact with peers through integration into "normal" group situations.

Functional Communication Training

An instructional strategy that identifies functionally equivalent alternatives to a child's problem behaviors is known as Functional Communication Training (FCT). In this approach, skills are targeted for instruction that fit within a customary communicative system. An understanding of the communicative functions of a child's problem behaviors informs the interventionists of specific objectives for early instruction in communication skills. The behavior-analytic approach is used in teaching and reinforcing the skills identified in the FCT program.

Biomedical

Children and youth with autism vary greatly in their degree of medical involvement. They may be healthy and energetic with normal sleep patterns, or they may be involved with one or more medical problems.

The DSM-IV includes information regarding neurological abnormalities that are reported in a significant percentage of children and youth with autism. These include various nonspecific neurological characteristics or signs such as primitive reflexes or delayed hand dominance. Characteristics of autism may also be observed in association with neurological and other general medical conditions such as encephalitis, phenylketonuria, tuberous sclerosis, fragile X syndrome, anoxia during birth, maternal rubella, and brain tumor. Seizure development, particularly in adolescence, is seen in as many as 25 percent of cases.

Medical problems, including immune system dysfunction and neurochemical abnormalities, suggest that medical interventions should be sought out as adjunctive treatments for children and youth with autism. A great deal of research is taking place in medical intervention strategies, use of drugs in treatment, and the genetics of autism.

Developmental

The developmental treatment approach emphasizes the child or youth's ability to relate to others with warmth, pleasure, empathy, and growing emotional flexibility. The challenge in this approach is in designing activities to help the child or youth with autism to learn to attend, relate, interact, experience a range of feelings, and ultimately, think and relate in an organized and logical manner.

The developmental approach requires direct and vigilant observation of interaction and relationships between the child or youth and caregiver, as well as between the child or youth and therapist, to identify "emerging capacities" for warm, intimate, interpersonal relating. Treatment is relationship-based, is focused on opportunities for spontaneous relating, and relies on effect cueing to achieve results.

The approach is based on following the child or youth's lead and supporting interaction that accomplishes skill acquisition in developmental sequences. The approach is often implemented with infants and young children and contains several key features, such as in the following list:

- A multidisciplinary team is comprised of a mental health professional, speech pathologist, occupational therapist, and special educator. Regular intensive work with the child and family is the core of the program.
- Integration with typically developing children of a similar age or developmental level provides opportunities for communication and interaction.
- Interventions focus on interaction patterns of child and parent.
- Children with disabilities are integrated into adequately staffed programs with typically developing children of a similar chronological age or developmental level (e.g., one or two preschool children with disabilities in a group of at least five typically developing children). Grouping children with disabilities with each other may not be in the interest of any individual child, especially if a child or youth's disability includes difficulties in communication or social interaction. As the child tries to communicate, he or she needs someone who can communicate back.
- During part of every day, an early intervention program should focus on the interaction patterns of the infant or young child and the parents.
- A professional should consult with the parents and other caregivers at least once a week to help with the family dynamics and interactive patterns at home.

Early interventionists, childcare providers, and teachers should be trained in techniques for appropriate peer-to-peer interaction, particularly between children with disabilities and typically developing children.

Play Time Experiences

When presented with opportunities to play with other children, children with autism often remain isolated. It is not that children with autism do not play. The problem is that their play patterns are unusual, hard to interpret, and often do not fit in with the ways that other children play. Many fail to play spontaneously, and they develop ritualistic and repetitive patterns of play.

Developmental continued

Children with autism often watch other children play, not knowing how to join, not able to communicate their own interests, and not understanding the social advances of the other children. IFSP/IEP outcomes or goals designed around functional skill areas can be implemented through play opportunities.

Some of the characteristics of appropriate play opportunities are described in the following list:

- Strategies to enhance play skills should be incorporated into all aspects of the early childhood program and for children in early elementary grades when possible.
- The adult serves as a facilitator rather than directing play.
- Set up play partners or take on this role as the adult. Many children with autism find adults easier to follow because their behavior is more predictable and more structured than the behavior of other children.
- Choose play materials on the basis of age appropriateness, potential for social play, realism, and structure.
- Assist other children in discovering ways to involve the child with autism in their play activities.
- Build on child's play activities by suggesting additional props and themes.

Communication Strategies

Communication is a primary focus of skill development for children and youth with autism because it is a common area of developmental delay. Communication is crucial for socialization and cognitive development, and it relates to the occurrence of challenging behaviors.

Approaches used by Speech/Language Pathologists are often designed to integrate communication training with the child's behavior program. Coordinating the opportunities for structured and naturalistic language learning can provide measurable and socially valid change in children with communication disabilities. Interventions in the development of morphological, syntactic, semantic, pragmatic, and speech intelligibility aspects of the linguistic system will enhance the communication abilities of children.

Incidental Teaching Model

The authors present an intervention model that exemplifies the overlap that frequently exists between approaches based on different intervention traditions such as applied behavior analysis (ABA) and developmental models. Although grounded in ABA principles of learning, the incidental teaching approach and curriculum are more similar to developmental approaches than to traditional ABA. The model provides opportunities to intervene within the context of ongoing activities in a typical early childhood setting with a peer group, as well as in the family environment. Thus, generalization of language and social skills can be actively promoted. A major emphasis of this approach is on establishing and maintaining engagement to support social development.

Developmental continued

LEAP Outreach Project – University of Colorado at Denver

The Learning Experiences, an Alternative Approach (LEAP) Preschool is a comprehensive interdisciplinary model of service delivery for preschool-age children with autism and their families. LEAP's approach includes the following components:

- Systematic teaching for typical children that results in their daily social and communicative engagement of peers with autism,
- Functional analysis of problem behaviors and communication-based strategies to replace the behaviors with more adaptive skills,
- Systematic daily data collection on IEP objectives and follow-up decision-making strategies regarding ongoing intervention,
- Programmed generalization promotion strategies that are built into initial skill acquisition tactics,
- Planning strategies to embed multiple response opportunities within naturally occurring activities that are fun for all children,
- A competency-based approach to behavior skill-training for families, and
- Staffing to support family and child skill acquisition in home, school, and community settings.

Natural Language Paradigm

In the Natural Language Paradigm (NLP), specific targets are taught in a variety of social settings using natural reinforcers. This system includes interaction with a communication partner or access to desired objects rather than using token or food reinforcers. NLP is similar to other models that teach the child to signal or ask for something by systematically prompting verbalizations with mands. Teachers model verbalizations if necessary and reinforce appropriate verbalization during daily routines.

The NLP procedures differ from other natural language programs by combining several of the positive features of both traditional operant procedures and natural language procedures.

Picture Exchange Communication System

The Picture Exchange Communication System (PECS) is a communication training program to help children with autism acquire functional communication skills. Children and youth using PECS are taught to give a picture of a desired item to a communication partner in exchange for the item.

The goals of PECS include the identification of objects that may serve as reinforcers for each child or youth's actions and the learning of responses to simple questions with multipicture systems. Special providers can quickly learn how to incorporate picture systems into a schedule-following program for students, to combine picture systems with time-based reward systems, and to promote spontaneity in the classroom.

Neurosensory

Sensorimotor Therapies

Sensorimotor information is interpreted by the senses of the body—how we hear, see, feel, smell, and taste. The way the body uses the information and the behaviors that can be present if the body and brain misinterpret this information, may be problematic for some individuals with autism. The approaches of Sensory Integration, Sensorimotor Interaction, and Auditory Integration Training (AIT) all work from a theoretical basis that the child has atypical responses to sensory input. These approaches work to integrate the senses to provide a more organized sensory system.

These approaches use structured physical activities, such as rhythm, body awareness, perceptual-motor development, and swimming. There is some question about the validity in enhancing language, controlling disruptive behavior, or reducing other characteristics of autistic behaviors through sensory integration therapy. However, these activities may offer enjoyable, healthy, physical activity and support the development of overall coordination skills that may be important in the child's development.

Psychotherapy

Psychoanalytic approaches include holding therapy, Gentle Teaching, and Options. These approaches view behavioral characteristics of children and youth with autism as expressions of underlying processes that constitute the real pathology. This approach emphasizes psychological causes and treatment rather than dealing with a "physical disease."

Research does not show any evidence of a psychogenic cause of autism. The effectiveness of psychotherapeutic approaches is questionable even though some techniques are helpful in some situations.

Play Therapy

Play has a role in facilitating language and cognition. As an intervention method to promote skills, individual settings and play group design can allow the clinician to structure activities to accommodate the child's level of functioning and create unique opportunities for new skills.

Some have questioned the appropriateness of play therapy. However, play therapy has been found to be useful in treatment of children with autism. Play therapy has supported children's attachment behaviors and capacity to form relationships. Learning appropriate behaviors with toys has shown an effect on reduction of self-stimulatory behaviors and ability to generalize appropriate play skills to new settings. Using sociodramatic play models, children have shown positive changes in play, language, and social skills.

Footnote: The Department of Public Instruction, Office of Special Education and Department of Human Services, Developmental Disabilities Services Division do not advocate the use of any particular method. A variety of options are described in these Guidelines so teams can consider what approaches may be beneficial for each individual.

APPENDIX A

Descriptive Classifications of Approaches

Appendix A: Descriptive Classifications of Approaches

The approach that works best for the child with autism is the approach that is most specific to a given child's needs. These categories are not meant to be all-inclusive. They are discussed here to prompt the reader's awareness of the programs available.

	Beliefs: **What are the most important program characteristics or components as well as the philosophical beliefs?**	**Goals:** **What should the child gain?**	**Strategies:** **What are the specific methods used?**	**Parental Role:** **What role do family members play?**	**Prominent Programs:** **Examples of commonly known programs using these methodology/treatment approaches.**
Behavioral	Manipulation of antecedents or consequences, schedules of reinforcement, stimulus control, behavioral (functional) assessment, functional communication training.	Normal behavior skill gain, maximize independence, minimize frustration, functional skills in developmental domains.	A sampling of strategies: discrete, distributed, or massed trials; modeling; shaping; chaining; prompting; physical guidance; picture schedules; reinforcement (immediate/delayed—interspersed/constant): written, picture, or gestural cues; punishment.	Provide coordination of skill training. Generalize to home and community.	Behavioral Support (Horner), Early Intensive Behavioral Treatment (Lovaas), Eden Program, Options, TEACCH (North Carolina), FCT (Functional Communication Training), PRT (Pivotal Response Training).
Biomedical	An abnormality in the structure of functioning of the brain underlies the hypothesized Neuropsychological deficit.	To develop treatments that are effective in changing outcomes. To develop treatments targeted at the main impairments.	"We do not have the research base yet to accept or reject any of these theories as primary." (Sally Rogers, 1997)	Consult your physician about current medical research findings.	None available. Experimental research continues to study brain functions. Chemical differences including increased serotinin levels, immunological issues such as food allergies, candida infections, and a number of abnormalities in brain structure (cerebellum, limbic system).
Developmental	Relationship-based, promotes learning in developmental sequences, integration with typically developing peers.	Emotional flexibility, communication with others, think and relate in an organized manner.	Multidisciplinary team planning, interactions with family, integration with peers, following child's lead in play and learning.	Parents are team members and often the focus of interventions with young children.	Greenspan Developmental Theories, Play- based Interventions.
Educational	Can teach skills and accommodate the child's communication, social, and cognitive deficits.	Become more independent. Gain age appropriate and relevant (functional) skills.	Discrete trial training, structured systematic teaching, natural language methods, Incidental/milieu teaching, structured activities/schedules, pivotal response training.	Generalize to home and community. Educational team member.	TEACCH (Treatment & Education of Autistic & Communication Handicapped Children), PECS (Picture Communication System), Social Skills Training (e.g., Social Stories), Natural Language Paradigm.
Neurosensory	The body (how we hear, see, feel, smell, taste) interprets sensorimotor information. The way the body uses the information and the behaviors that can be present if this information is misinterpreted by the body/brain.	Behaviors of autism are addressed through a sensory-integrative program.	Increased tolerance of sensation, more organized sensorimotor behaviors.	Facility sensory activities.	Sensory Integration program directed by Occupational Therapist, Neurodevelopmental Treatments (NDT) Program directed by OT or PT. Auditory Integration Training (AIT), Pivotal Response Training (PRT).
Psychotherapy	Can teach that social interactions are rewarding and can form bonding relationships with others. There is no evidence of a psychogenic cause of autism. The efficacy of psychoanalytic treatments is also questionable.	Form sense of own person. Gain social relationships. Bond with others.	Play-based therapy Individualized attention Social interactions	Parents can learn new interaction patterns. Fit social interactions into the child's daily routine.	Options program Gentle Teaching Play Therapy

[a] *This is not an exhaustive list of programs.*
[b] *These programs may overlap methodologies.*

APPENDIX B

Autism Related Diagnostic and Assessment Instruments

Academic Screening

Wide Range Achievement Test 3 (WRAT3)

Adaptive Assessment

Residential Lifestyle Inventory
Vineland Adaptive Behavior Scales (VABS)

Behavior Assessment

AAMR Adaptive Behavior Scales—School: 2nd Edition (ABS-S:2)
Achenbach Child Behavior Checklist (ACBC)
Analysis of Sensory Behavior Inventory (Rev. ed.) (ASBI)
Early Coping Inventory for Stressful Situations (ECISS)
Social Behavior Assessment Inventory Purpose (SBAI)
Test of Pretend Play
The Personality Inventory for Children (PIC)
The Scales of Independent Behavior Rev. ed.) (SIB-R)

Communication Assessment

Assessing Semantic Skills Through Everyday Themes (ASSTET)
Bracken Basic Concept Scale (Rev. ed.) (BBCS-R)
Clinical Evaluation of Language Fundamentals—Preschool (CELF-P)
Clinical Evaluation of Language Fundamentals, Third Edition (CELF-III)
ECOScales
Expressive One-Word Picture Vocabulary Test (Rev. ed.)
Peabody Picture Vocabulary Test (Rev. ed.) (PPVT)
Preschool Language Scale (3rd Edition) (PLS-III)
Receptive One-Word Picture Vocabulary Test (Rev. ed.)
Reynell Developmental Language Scales
Sequenced Inventory of Communication Development (Rev. ed.) (SICD-R)
Test of Language Competence
Test of Language Development (TOLD-P3)
Test of Language Development Intermediate (TOLD-13)
Test of Pragmatic Language
Test of Problem Solving
Nonspeech Test for Receptive/Expressive Language

Developmental Assessment

Assessment, Evaluation, and Programming System (AEPs)
Birth to Three Developmental Scales
Brigance—Diagnostic Comprehensive Inventory of Basic Skills
Diagnostic Inventory of Early Development
Diagnostic Inventory of Essential Skills
Life Skills Inventory
Carolina Curriculum for Infants and Toddlers with Special Needs/Carolina Curriculum for Preschoolers with Special Needs
Developmental Assessment for Students with Severe Disabilities (DASH-2)
Developmental Play Assessment Instrument
Generic Skills Inventory and Specific Skills Inventory
Hawaii Early Learning Profile (HELP)
Psychoeducational Profile–Revised (Rev. ed.) (PEP-R)
Residential Lifestyle Inventory
Southern California Ordinal Scales of Development (SCOSD)
Vineland Adaptive Behavior Scales

Diagnostic Assessment	Autism Behavior Checklist (ABC) Autism Diagnostic Interview—(Rev. ed.) (ADI) Autism Diagnostic Observation Schedule—Generic (ADOS-G) Autism Screening Instrument for Educational Planning (2nd ed.) (ASIEP-2) Autism Spectrum Screening Questionnaire (ASSQ) Checklist for Autism in Toddlers (CHAT) Childhood Autism Rating Scale (CARS) Diagnostic Checklist for Behavior-Disturbed Children (Form E-2) Gilliam Autism Rating Scale (GARS) Pervasive Developmental Disorder Screening Test (PDDST) Stage One Stage Two Stage Three Prelinguistic Autism Diagnostic Observation Schedule (PL-ADOS) Real Life Rating Scale
Family Assessment	Behavioral Vignettes Test (BVT) Child Improvement Locus of Control Scale (CILC) Family Adaptability and Cohesion Evaluation Scales III (FACES III) Family Assessment Interview (FAI) Family Environmental Scale (FES) Parenting Satisfaction Scale (PSS) Parenting Stress Index (3rd ed.) (PSI-III) Questionnaire on Resources and Stress (QRS) The Parental Stress Scale (PSS)
Infant/Toddler Assessment	Bayley Scales of Infant Development (2nd ed.) Early Coping Inventory Mullen Scales of Early Learning (MSEL)
Other Assessment Options	Audiometric Assessment Complete Medical Examination Standardized Videotape Assessment
Standardized Tests of Intelligence	Differential Ability Scales (DAS) Stanford-Binet Intelligence Scale (4th ed.) (SBIS-IV) Wechsler Intelligence Scale for Children (Third ed.) (WISC-III) Wechsler Preschool and Primary Scale of Intelligence (Rev. ed.) (WPPSI-R)
Tests of Nonverbal Intelligence	Columbia Mental Maturity Scale (3rd ed.) (CMMS-III) Leiter International Performance Scale (LIPS) Merrill-Palmer Scale of Mental Tests (MPSMI) Test of Nonverbal Intelligence (2nd ed.) (TONI-II) Universal Nonverbal Intelligence Test (UNIT)

Diagnostic and Assessment Instruments Appropriate for Use with Children with Autistic Disorders

The following instruments are used by educators, clinicians, and researchers to assess children suspected of, or previously diagnosed with, autism or autistic spectrum disorder. The instruments were selected for this list because they are used to measure specific dimensions of a child's development, environment, or family needs. The instruments listed provide measures of development in different domains of functioning. Rate of change in those domains is sometimes used as a baseline or as a follow-up measure of developmental progress or response to educational programming. Some of the instruments listed below are critically reviewed in Burros' Mental Measurement Yearbook.

To obtain the instrument or training in the use of an instrument, refer to the publisher's catalogue or author's comments. For convenience, instruments are categorized under headings, listed alphabetically, that describe part or all of the purpose of the instrument. The following list of assessment instruments represents a sample of instruments most familiar to professionals working with children with autism.

ACADEMIC SCREENING

Wide Range Achievement Test 3 (WRAT3)

The Wide Range Achievement Test 3 (WRAT3) measures reading, spelling, and arithmetic in persons from five to 74 years old. Two equivalent forms make pre- and post-testing possible. The test takes 10 to 15 minutes to administer. The WRAT3 provides a good method for measuring basic academic skills in children who perform below their peers.

ADAPTIVE ASSESSMENT

Residential Lifestyle Inventory

The Residential Lifestyle Inventory provides information on a person's activity patterns that includes the types of activities that were performed during the previous 30 days and how many times each activity occurred at home or in the community. It is useful for individualized plan development and ongoing monitoring of lifestyle indicators in community-based residential programs supporting people with severe disabilities.

Vineland Adaptive Behavior Scales (VABS)

The Vineland Adaptive Behavior Scales (VABS) (Sparrow, Balla, & Cicchetti, 1984) comes in three forms varying in degree of detail and proposed setting. There is the Survey Form, the Expanded Form, and the Classroom Edition. The VABS is administered by interviewing the child's parents, teachers, or care providers. The scales range in age from birth to 19 years. Raw scores from communication, daily living skills, socialization, motor skills, and maladaptive behaviors are converted to standard scores with a mean of 100 and a standard deviation of 15. The Adaptive Behavior composite score includes the domains noted above and reflects overall adaptive ability.

Questions have been raised about the scales' standardization and the accuracy of standard scores across the age range. One problem is lack of uniformity of scores across various ages. Depending upon the child's age, means and standard deviations differ. Thus, comparing the same child's performance on reassessment is compromised, as is the accuracy of any composite score. Differences among domain scores may be more apparent than real because of variable scores. There is considerable overlap among the various domains with both communication and daily living domains containing questions about the child's language ability.

BEHAVIOR ASSESSMENT

AAMR Adaptive Behavior Scales - School: 2nd Edition (ABS-S:2)

AAMR Adaptive Behavior Scales-School: 2nd Edition (ABS-S:2) contains two parts: Part I contains content on behavior domains, Part II contains content related to social maladaptation. For children and youth age 3–18, this tool is published by Psychological Assessment Resources, Inc.

The Achenbach Child Behavior Checklist (ACBC)

The Achenbach Child Behavior Checklist (ACBC) is for children four to 18 years old and is completed by an adult informant. It has two major scales--ternalizing and internalizing behaviors—each of which has four subscales. It has been used as a follow-up measure.

The child's primary caregiver (in most cases, the client's mother) serves as the informant. There is a separate version of this test developed for teachers, the Teacher Report Form. (Achenbach, 1991)

The Analysis of Sensory Behavior Inventory (Rev. ed.) (ASBI-R)

The Analysis of Sensory Behavior Inventory (Rev. ed.) (ASBI-R) (Morton & Wolford, 1994) is designed to collect information about an individual's behaviors as they are related to sensory stimuli. Six sensory modalities are assessed: vestibular, tactile, proprioceptive, auditory, visual, and gustatory-olfactory. Ratings can be made about both sensory-avoidance and sensory-seeking behaviors within each modality. Information obtained from this tool may be helpful in completing a functional analysis of behavior and in designing effective intervention strategies, including accommodations and reinforcers for the individual.

Sensory processing differences are frequently seen in persons with severe disabilities and problem behaviors. Analyzing these differences may assist in understanding puzzling behaviors that have proven difficult to change. Interventions that accommodate to individual differences frequently result in improved adaptive functioning. (Available from Skills with Occupational Therapy, Arcadia, California)

Early Coping Inventory for Stressful Situations (CISS)

The Early Coping Inventory for Stressful Situations (CISS) measures multidimensional coping styles: task-oriented, emotion-oriented, and avoidance-oriented coping. This tool is designed for adolescence through adult and is available from Psychological Assessment Resources, Inc.

Social Behavior Assessment Inventory Purpose (SBAI)

The Social Behavior Assessment Inventory Purpose (SBAI) is a tool designed for use in elementary grades through grade nine. It measures the level of social behaviors exhibited by children and adolescents in classroom settings. It is available through Psychological Assessment Resources, Inc.

Test of Pretend Play

The test of pretend play is designed for children age one to six. It assesses three types of symbolic play - substituting one object for another object or person and reference to an absent object, person, or substance. There are two versions - nonverbal and verbal. This test is published by the Psychological Corporation.

The Personality Inventory for Children (PIC)

The Personality Inventory for Children (PIC) (Wirt, Lachar, Klinedinst, & Seat, 1977) is a true-false questionnaire for children ages three to 16 years that consists of 13 clinical and three validity scales. The PIC is administered to parents. The scales measure areas of emotional disturbance in children such as anxiety, withdrawal, depression, and reality distortion. This inventory can be completed by the child's primary caregiver.

The Scales of Independent Behavior Revised (SIB-R)

The Scales of Independent Behavior Revised is a comprehensive nonreference assessment of adaptive and maladaptive behavior. It can be used from infancy through elderly adulthood and is available through the Riverside Publishing Company.

COMMUNICATION ASSESSMENT

Assessing Semantic Skills Through Everyday Themes (ASSET)

The Assessing Semantic Skills Through Everyday Themes (ASSET) (Barrett, Zachman, & Huisingh, 1988) is a test of receptive and expressive semantics for preschool and early elementary children. It is built around six common themes, which represent aspects of everyday life that are familiar and important to preschool and early elementary children. Test items emphasize vocabulary that is meaningful and relevant to the experiences of young children. There are five receptive and five expressive subtests, which are designed to elicit responses by questions or directions from the examiner, that refer to the illustrations in the picture stimuli book. Nonverbal performances on receptive vocabulary tasks can be compared to verbal responses on the expressive subtests. This evaluation instrument provides standardized analyses of receptive, expressive, and overall vocabulary abilities. Available from LinguiSystems, Inc., Moline. (3rd Ed.)

Bracken Basic Concept Scale (Rev. ed.)(BBCS-R)

The Bracken Basic Concept Scale assesses fundamental educational concepts and child's knowledge of concepts that constitute an indication of a child's readiness for formal education. This tool measures children's basic concept acquisition and receptive language skills. Available in Spanish. Appropriate for children two years, six months through seven years, 11 months. Available through Harcourt Educational Measures.

Clinical Evaluation of Language Fundamentals - Preschool (CELF-P)

The Clinical Evaluation of Language Fundamentals – Preschool (CELF-P) (Wiig, Secord, R Semel, 1992) is a tool for identifying, diagnosing, and performing follow-up evaluations of language deficits in preschool children. It assesses receptive and expressive language ability, including: semantics, morphology, syntax, and auditory memory. It is standardized for ages three years and zero months through six years and 11 months. (Available from The Psychological Corporation, San Diego, California).

Clinical Evaluation of Language Fundamentals (3rd ed.)(CELF-III)

The Clinical Evaluation of Language Fundamentals, (3rd ed.) (CELF-III) is a tool administered by Speech Pathologists for children age six through 21. It is used to gather information on student's classroom communication and language learning difficulties and performance in real-life situations. This tool covers listening, speaking, reading, and writing. It is available through Harcourt Educational Measures.

ECOScales

The ECOScales Manual (MacDonald, Gillette, R Hutchinson, 1989) provides a model for evaluating the interactive and communication skills of preconversational children and their caregivers. The model is designed for both program planning and progress monitoring as well as for determining the child's performance. The ECOScales assessment approach assumes the adult is an active participant in the child learning to communicate. The ECOScales is an interactive approach that charts development from early play to conversations. Five levels of interactive development and delays are considered. The ECOScales Manual identifies disorders, not in terms of linguistic performance alone, but in terms of interaction skills and their role in fostering communication.

Expressive One-Word Picture Vocabulary Test (Rev. ed.)

The Expressive One-Word Picture Vocabulary Test (Rev. ed.) (Gardner, 1990) measures the child's ability to verbally label objects and people. The child must identify, by word, a single object or a group of objects on the basis of a single concept. This is a standardized test that provides age equivalents, standard scores, scaled scores, percentile ranks, and stanines. It is available from Academic Therapy Publications, Novato, California.

Peabody Picture Vocabulary Test (Rev. ed.)(PPVT-R)

The Peabody Picture Vocabulary Test (Rev. ed.) (PPVT-R) (Dunn & Dunn, 1981) measures an individual's receptive vocabulary for standard American English. It measures one facet of general intelligence: vocabulary. It takes a relatively short period of time to administer and may be used as an initial screening device. It is available from American Guidance Service, Circle Pines, Minnesota.

Preschool Language Scale (3rd Edition)(PLS-III)

The Preschool Language Scale (3rd ed.) (PLS-III) (Zimmerman, Steiner, & Pond, 1992) has two standardized subscales, Auditory Comprehension and Expressive Communication, which allow evaluation of a child's relative ability in receptive and expressive language. When comparing scores, one can determine whether deficiencies are primarily receptive or expressive in nature or whether they reflect a delay or disorder in communication. Precursors of receptive skills (with a focus on attention abilities) and precursors to expressive skills (with a focus on social communication and vocal development) are also assessed. Supplemental measures include: Articulation Screener, the Language Sample Checklist, and the Family Information and Suggestions Form. It is available from The Psychological Corporation, San Diego, California.

Receptive One-Word Picture Vocabulary Test (Rev. ed.)

The Receptive One-Word Picture Vocabulary Test (Rev. ed.) (Gardner, 1990) obtains an estimate of a child's one-word hearing vocabulary based on what the child has learned from home and school. It provides information about the child's ability to understand language. This is a standardized test that provides age equivalents, standard scores, scaled scores, percentile ranks, and stanines. It is available from Academic Therapy Publications, Novato, California.

Reynell Developmental Language Scales

The Reynell Developmental Language Scales (Reynell, 1987) is a language test for children from one to seven years. The Reynell measures comprehension (receptive language) and expressive language and is widely used with language-delayed children. This test will be given to all subjects at intake, at 12 months into treatment, at 24 months into treatment, and at follow-up to provide an index of the rate of growth in language functioning.

Sequenced Inventory of Communication Development (Rev. ed.)(SICD-R)

The Sequenced Inventory of Communication Development (Rev. ed.) (SICD-R) (Hedrick, Prather, R Tobin 1984) tests a variety of early communication skills, giving a broad perspective of the semantic, syntactic, and pragmatic aspects of a child's receptive and expressive language. It combines parental report items with behavioral items that incorporate materials and methods to keep children's attention. The test provides for assignment of communication ages and for determining initial goals in communication programming. It is available from University of Washington Press, Seattle, Washington.

Test of Language Competence

Test of Language Competence is used with students age 9–18. Subtests included ambiguous sentences, listening comprehension, making inferences, oral expression, recreating speech acts, and figurative language. It is available from M.O. Angus and Associates Limited.

Test of Language Development (TOLD-P3)

Designed for children ages four through eight years, 11 months. Nine subtests measure different components of spoken language. It is available from M.O. Angus and Associates Limited.

Tests of Language Development Intermediate (TOLD-13)

For use with children age eight to 12, nine subtests measure different components of spoken language. It is available from M.O. Angus and Associates Limited.

Tests of Pragmatic Language

Test of Pragmatic Language assesses a student's ability to effectively use pragmatic language in grades kindergarten through middle school. It is available from M.O. Angus and Associates Limited.

Test of Problem Solving

Two tests, one for six to 11 years and one for 12 to 17 years assess how students use language to think, reason, and problem-solve. It is available from M.O. Angus and Associates Limited.

The Nonspeech Test for Receptive/Expressive Language

The Nonspeech Test (Huer, 1988) is designed to provide a systematic way for observing, recording, and summarizing the variety of means in which an individual may communicate. This tool determines a person's skills as a communicator whether speech or nonverbal means are used for communication. It allows for easy development of IEP objectives from the test response forms. It is available from Don Johnston Developmental Equipment, Inc.

DEVELOPMENTAL ASSESSMENT

Assessment, Evaluation, and Programming System (AEPs)

Assessment, Evaluation, and Programming (AEPs) provides a comprehensive curriculum assessment that includes materials for linking assessment, IFSP/IEP development, curriculum/intervention, and evaluation. The system is broken into functioning levels of birth to three years and three to six years. Processes for using this tool include strategies for team assessment and planning. The AEPS is available from Paul Brooks Publishing Company.

Birth to Three Developmental Scales

The Birth to Three Developmental Scales is a criterion-referenced tool used with children from birth to 36 months. It is used to measure oral language (comprehension and oppression) problem solving, social/personal, and motor development. This tool is available through PLM Teaching Resources.

Brigance Diagnostic Comprehensive Inventory of Basic Skills

The Brigance Diagnostic Comprehensive Inventory of Basic Skills contains 203 skill references including: reading, listening, research and study skills, writing, spelling, language, and mathematics. This is appropriate for elementary and middle schools. The tool serves as an assessment instrument for screening and diagnostic purposes, an instructional guide for educational objectives, a record keeping and tracking system, a tool to develop and communicate instructional plans, and a resource for curriculum and staff development.

Brigance Diagnostic Inventory of Early Development

The Brigance Inventory (Brigance, 1978) is criterion-referenced rather than norm-referenced. While useful for assessment purposes, its value is in identifying instructional objectives, serving as a guide for measuring those objectives, and providing an ongoing tracking system. The Brigance Inventory is intended for informal assessment of several aspects of child development and is for children functioning at developmental levels from birth to seven years of age. Major areas assessed include general knowledge and comprehension, speech and language, preacademics, self-help, and psychomotor skills. Within these major areas, there are 98 subtests of sequenced developmental skills.

The Brigance Inventory permits different administrations to be used, such as observation, direct testing of the child, or reports from caretakers, child-care workers, or teachers. To elicit the child's maximum performance, clinicians are encouraged to allow children to respond in any possible fashion, such as, pointing, eye localizations, or verbalizing. Clinicians are encouraged to adapt materials to best meet the needs of the child to get a response.

Reliability and validity measures of the Brigance Inventory are limited as is true of most criterion-referenced instruments. There is no reported reliability or validity data in the manual.

The value of the Brigance Diagnostic Inventory lies in its ability to identify a child's pattern of strengths and weaknesses in several areas. The items are representative of a curriculum appropriate for an early childhood program and thus are easily linked to instructional planning and intervention (Bagnato, 1985). Another benefit of relating items to teaching and planning is that repeated assessments with the Brigance Inventory can pinpoint areas of gains and losses. The obvious caution here is to avoid teaching to the test since the items are so very specific. (See an article by Gory, 1985, for a review of the Brigance Inventory.)

Brigance Diagnostic Inventory of Essential Skills

This criterion-referenced tool is designed for use with special needs students in secondary programs. It covers basic academic and applied skills relevant to functioning as a citizen, consumer, worker, and family member. Assessment, diagnostic, record keeping, and instructional planning strategies are provided in the areas of reading, language, arts, mathematics, and life skills.

Brigance Life Skills Inventory

The Brigance Life Skills Inventory includes: assessments to evaluate listening, speaking, reading, writing, comprehending, and computing skills within the context of everyday situations. It is intended for uses with adult basic education, English as a second language, secondary special education, vocational education, and family literacy programs.

The Carolina Curriculum for Infants and Toddlers with Special Needs/Carolina Curriculum for Preschoolers with Special Needs

The curriculum is developed in two parts: birth through 24 months and two through five years. The curriculum includes: detailed assessment and intervention sequences daily routine integration strategies, sensorimotor adaptations, and a sample assessment log. These tools are available through Paul Brooks Publishing Company.

Developmental Assessment for Students with Severe Disabilities (DASH-2)

Developmental Assessment for Students with Severe Disabilities (DASH-2) assesses performance in language, sensorimotor skills, activities of daily living, basic academic skills, and social-emotional skills. It identifies skills as, task resistive, needing minimal assistance, or an independent performance. Skill levels addressed are from birth to six years. This tool is available from Pro-Ed.

Developmental Play Assessment Instrument

The Developmental Play Assessment Instrument (Lifter, Sulzer-Azaroff, Anderson, R Edwards-Cowdery, 1993) is an instrument used to assess the play development of children with disabilities relative to the play of nondisabled children. The developmental quality of toy play is evaluated according to the level of pretend play and the frequency and variety of play activities within the level identified.

Generic Skills Inventory and Specific Skills Inventory

This tool is developed for children from one month through five years. It covers assessment, planning, and implementation addressing the full span of developmental objectives in several areas including interpersonal interactions, communication, cognition, receptive language, expressive language, movement, eating, toileting, dressing, grooming, and pre-academic. The publisher is Communication Skills Builders.

Hawaii Early Learning Profile (HELP)

The Hawaii Early Learning Profile (HELP) is published in two sections for infants and toddlers (birth to three years) and preschoolers (age three to six). A profile is used that looks at the domains of cognition, language, gross motor, fine motor, social, emotional, and self-help skills. A curriculum guide with activities to enhance individual developmental skills is also available. These tools are published by VORT Corporation.

Psychoeducational Profile–(Rev. ed.) (PEP-R)

The Psychoeducational Profile-Revised (PEP-R) (Schopler, Reichler, Bashford, Lansing, & Marcus, 1990) offers a developmental approach to the assessment of children with autism or related developmental disorders. It is an inventory of behaviors and skills designed to identify uneven and idiosyncratic learning patterns.

The test is most appropriately used with children functioning at or below the preschool range and within the chronological age range of six months to seven years. The PEP-R provides information on developmental functioning in imitation, perception, fine motor, gross motor, eye-hand integration, cognitive performance, and cognitive verbal areas. The PEP-R also identifies degrees of behavioral abnormality in relating and effect (cooperation and human interest), play and interest in materials, sensory responses, and language.

The PEP-R kit consists of a set of toys and learning materials that are presented to a child within structured play activities. The examiner observes, evaluates, and records the child's responses during the test. There are 131 developmental and 43 behavioral items on the PEP-R. The total time required to administer and score these items varies from 45 minutes to 1.5 hours. Because it is not a test of speed, variations in total testing time depend on the child's levels of functioning and any behavior management problems that arise during the testing situation. At the end of the session, the child's scores are distributed among seven developmental and four behavioral areas. The resulting profiles depict a child's relative strengths and weaknesses in different areas of development and behavior. The Developmental Scale tells where a child is functioning relative to peers. The items on the Behavioral Scale have the separate, but related, assessment function of identifying responses and behaviors consistent with a diagnosis of autism. The PEP-R provides a third and unique score called emerging. A response scored "emerging" is one that indicates some knowledge of what is required to complete a task but not the full understanding or skill necessary to do so successfully.

The Adolescent and Adult Psychoeducational Profile (AAPEP) extends the PEP-R to meet the needs of adolescents and adults.

Southern California Ordinal Scales of Development (SCOSD)

The Southern California Ordinal Scales of Development (SCOSD), which is available from Western Psychological Services, was developed by the California Department of Education, Diagnostic Center in Southern California (1985). The developmental scales of cognition, communication, social affective behavior, practical abilities, gross motor abilities, and fine motor abilities are based on two fundamental principles. First, they draw extensively on the developmental theories of Jean Piaget. Each scale is divided according to the levels and stages that Piaget describes in his writings on human development. Second, the SCOSD incorporates assessment techniques that aim to minimize the constraints of traditional, standardized ability testing. When possible, the examiner is encouraged to observe the child in his or her natural environment, using materials that are readily available and familiar. In interpreting the results of assessment, the examiner arrives at a total picture of the child's abilities in terms of the particular developmental scale.

The SCOSD is criterion-referenced rather than norm-referenced. Assessment procedures are flexible, rather than fixed, and the scoring system takes into account the quality as well as the quantity of responses.

DIAGNOSTIC ASSESSMENT

Autism Behavior Checklist (ABC)

The Autism Behavior Checklist (ABC) is a general measure of autism. It is not as reliable as the CARS or ADI-R. Correlations between the ABC and CARS ranged from 0.16 to 0.73 in a study by Eaves and Milner (1993). The CARS correctly identified 98 percent of the autistic subjects; it identified 69 percent of the possibly autistic as autistic. The ABC correctly identified 88 percent of the autistic subjects, while it identified 48 percent of the possibly autistic as autistic. In two separate studies, teachers' ratings on the ABC failed to reveal a common set of characteristics of students with high functioning Autistic Disorder (Myles, Simpson, & Johnson, 1995) and Asperger's Disorder (Ghaziuddin, N., Metler, Ghaziuddin, M., Tsai, & Luke, 1993).

Autism Diagnostic Interview -(Rev. ed.)(ADI-R)

The Autism Diagnostic Interview - Revised (ADI-R) is a semi-structured, investigator-based interview for caregivers of children and adults for whom autism or pervasive developmental disorders is a possible diagnosis. Two studies (Lord, Rutter, R LeCouteur, 1994; Lord, Storoschuk, Rutter, R Pickes, 1993) were conducted to assess the psychometric properties of the ADI-R. Reliability was tested among 10 autistic (mean age 48.9 months) and 10 mentally handicapped or language-impaired children (mean age 50.1 months), and validity was tested among an additional 15 autistic and 15 nonautistic children. Results indicated the ADI-R was a reliable and valid instrument for diagnosing autism in preschool children. Inter-rater reliability and internal

consistency was good, and inter-class correlations were very high.

A standard diagnostic interview is conducted at home or in a clinic. The ADI-R is considered by some professionals in the field as a measure of high diagnostic accuracy. It takes several hours to administer and score. The ADI-R is recognized as one of the better standardized instruments currently available for establishing a diagnosis of autism. It is a semi-structured interview administered to subjects' caregivers that determines whether or not an individual meets the Diagnostic and Statistical Manual of Mental Disorders (3rd ed., revised) criteria for autism. The authors of the ADI-R plan to update the scoring procedure so it reflects DSM-IV criteria. The assessment begins with a home visit by a therapist who interviews the child's parents. A home visit provides a chance to meet the child and to get a sense of the parents' priorities. This interview may be scheduled as part of the in-clinic assessment. (Rutter, Lord, and LeCouteur, 1990).

Autism Diagnostic Observation Schedule - Generic (ADOS-G)

The Autism Diagnostic Observation Schedule - Generic (ADOS-G) is used on ICD-10 and DSM-IV criteria. Four modules are used to evaluate communication, reciprocal interaction, play, restricted interests, and other abnormal behaviors. It is designed for use for toddlers through adults. This assessment requires specific training and validation procedures to administer. Available through Western Psychological Service.

Autism Screening Instrument for Educational Planning (2nd ed.)(ASIEP-2)

The Autism Screening Instrument for Educational Planning (2nd ed.) (ASIEP- 2) (Krug, Arick, & Almond, 1993) is a major revision of one of the most popular individual assessment instruments available for evaluating and planning for subjects with autistic behavior characteristics. Standardized and researched in diagnostic centers throughout the world, ASIEP-2 uses five components to provide data on five unique aspects of behavior with individuals from 18 months through adulthood. The components of the ASIEP examine behavior in five areas: sensory, relating, body concept, language, and social self-help. The ASIEP-2 samples vocal behavior, assesses interactions and communication, and determines learning rate. In combination, ASIEP-2 subtests provide a profile of abilities in spontaneous verbal behavior, social interaction, educational level, and learning characteristics. Revisions to the ASIEP-2 include a new decision matrix, a new norming table section, and simplified administration of the Prognosis of Learning Rate Subtest. The author reports a strong intercorrelation among the ASIEP-2 subtests and the utility of the battery to distinguish among groups of subjects with a variety of disabilities. ASIEP-2 components have been normed individually. Percentiles and standard scores are provided for the five subtests.

Autism Spectrum Screening Questionnaire (ASSQ)

The Autism Spectrum Screeing Questionnaire may be used when assessing symptoms characteristic of Asperger's Syndrome and other high functioning Autic Spectrum Disorders in children and adolescents with normal intelligence or mild mental retardation. This questionnaire may be used for children and youth age six through 17 and takes no training to administer. It is available through the Journal of Autism and Developmental Disorders.

Checklist for Autism in Toddlers (CHAT)

The Checklist for Autism in Toddlers (CHAT) is a screening instrument designed to detect core autistic features to enable treatment as early as 18 months. The most effective treatment currently available for autism is early educational intervention, beginning as soon as possible after a child's diagnosis. Unfortunately, intervention rarely begins before the age of three years because few autistic children are diagnosed before they reach preschool age. CHAT offers physicians a means of diagnosing autism in infancy so that educational programs can be started months or even years before most symptoms become obvious. According to the authors, "We stress that the CHAT should not be used as a diagnostic instrument, but it can alert the primary health professional to the need for an expert...referral."

A study (Baron-Cohen, Allen, & Gillberg, 1992) using the CHAT revealed that key psychological predictors of autism at 30 months are showing two or more of the following at 18 months: (a) lack of pretend play, (b) lack of protodeclarative pointing, (c) lack of social interest, (d) lack of social play, and (e) lack of joint-attention. The CHAT detected all four cases of autism in a total sample of 91, 18-month-old children. The authors recommend that if a child lacks any combination of these key types of behavior on examination at 18 months, it makes good clinical sense to refer him or her for a diagnostic assessment by a specialist with expertise in autism.

A second study (Baron-Cohen, Cox, Baird, Swettenham, Nightingale, Morgan, Drew, & Charman, 1996) concluded that "consistent failure of three key items from the CHAT at 18 months of age carries an 83.3 percent risk of autism, and this pattern of risk indicator is specific to autism when compared to other forms of developmental delay." In the second study, research data on 16,000 children suggested that children who failed three items on the CHAT are at high risk of being autistic. The items include protodeclarative pointing (pointing at an object to direct another person's attention to it – not to obtain the item, but simply to share an interest in it) gaze monitoring (turning to look in the same direction as an adult is looking) and pretend play. The false positive rate for detection of autism using the CHAT is estimated at 16.6 percent.

Childhood Autism Rating Scale (CARS)

The Childhood Autism Rating Scale (CARS) was developed by the Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) program staff in North Carolina to formalize observations of the child's behavior throughout the day. This 15-item behavior-rating scale helps to identify children with autism and to distinguish them from developmentally disabled children who are not autistic. Brief, convenient, and suitable for use with any child older than two years of age, the CARS makes it much easier for clinicians and educators to recognize and classify autistic children. Developed over a 15-year period, with more than 1,500 cases, CARS includes items drawn from five prominent systems for diagnosing autism. Each item covers a particular characteristic, ability, or behavior. After observing the child and examining relevant information from parent reports and other records, the examiner rates the child on each item. Using a seven-point scale, he or she indicates the degree to which the child's behavior deviates from that of a normal child of the same age. A total score is computed by summing the individual ratings on each of the 15 items. Children who score above a given point are categorized as autistic. In addition, scores falling within the autistic range can be divided into two categories; mild-to-moderate and severe. Professionals who have had only minimal exposure to autism can easily be trained to use CARS. Two training videos showing how to use and score the scale are available from Western Psychological Services (WPS). (Schopler, Reichler, DeVellis, & Daly, 1988; Schopler, Reichler, & Renner, 1986)

Diagnostic Checklist for Behavior-Disturbed Children (Form E-2)

The Form E-2 Diagnostic Checklist (Rimland, 1971), developed at the Institute for Child Behavior Research, was proposed as an assessment instrument that differentiates between cases of "classical" autism and a broader range of children with "autistic-like" features. Questions on Form E-2 reference behaviors in children between birth and age six. This questionnaire is completed by the child's parents. The form is intended to be used to identify autism for "biological research." Rimland is clear that Form E-2 is not designed to determine whether or not a child is autistic for the purposes of being admitted to an educational or rehabilitative program.

Gilliam Autism Rating Scale (GARS)

Designed for use by teachers, parents, and professionals, the Gilliam Autism Rating Scale (GARS) (Gilliam & Janes, 1995) helps to identify and diagnose autism in individuals ages three through 22 years and to estimate the severity of the problem. Items on the GARS are based on the definitions of autism adopted by the DSM-IV. The items are grouped into four subtests: stereotyped behaviors, communication, social interaction, and developmental disturbances. The GARS has three core subtests that describe specific and measurable behaviors.

An optional subtest (Developmental Disturbances) allows parents to contribute data about their child's development during the first three years of life. Validity and reliability of the instrument are high. Coefficients of reliability (internal consistency, test-retest, and inter-scorer) for the subtests are all in the 0.80s and 0.90s. Behaviors are assessed using objective, frequency-based ratings. The entire scale can be completed in five to 10 minutes by persons who have knowledge of the child's behavior or the greatest opportunity to observe him or her. Standard scores and percentiles are provided.

The Pervasive Developmental Disorder Screening Test (PDDST)

The Pervasive Developmental Disorder Screening Test (PDDST) (Siegel, 1996) is designed to be administered in settings where concerns about possible autistic spectrum disorders arise. Different "stages" of the PDDST correspond to representative populations in (a) primary care clinics, (b) developmental clinics, and (c) autism clinics. The PDDST is designed as a screening test and is a parent report measure. As such, it does not constitute a full clinical description of early signs of autism but does reflect those early signs that have been found to be reportable by parents and correlated with later clinical diagnosis.

Stage One

Primary care screening is designed for use in primary care pediatric settings where the vast majority of parents express initial complaints about symptoms that prove to be significant in diagnoses of ASD. The index population is patients who were clinically screened and then referred to an autism specialty clinic (and who eventually received diagnoses of Autistic Disorder, PDD-NOS, or another developmental disorder but with at least a few autistic symptoms N=379). The control population is high-risk preterm infants (at risk of mild-to-moderate neurological dysfunction; N=198).

Stage Two

Developmental disorder clinic screening is designed for use in developmental clinics where children are often first assessed for possible developmental disorders. The index population is patients with diagnoses of Autistic Disorder or PDD-NOS N=318. The control population is patients clinically screened as appropriate for an autism evaluation but who eventually received nonautistic spectrum disorder diagnoses, such as mental retardation or developmental language disorders N=62.

Stage Three

ASD screening is designed for use in specialty clinics for children suspected of ASD. The index population is patients with diagnoses of Autistic Disorder N=201. The control population is patients with diagnoses of PDD-NOS N=59.

Prelinguistic Autism Diagnostic Observation Schedule (PL-ADOS)

The Prelinguistic Autism Diagnostic Observation Schedule (PL-ADOS) (DiLavore, Lord, & Rutter, 1995) is a semi-structured observation scale for diagnosing children who are not yet using phrase speech and who are suspected of having autism. The scale is administered to the child with the help of a parent. This instrument provides an opportunity to observe specific aspects of the child's social behavior, such as joint attention, imitation, and sharing of effect with the examiner and parent. PL-ADOS scores are reported to discriminate between children with autism and children with nonautistic developmental disabilities. The resulting diagnostic algorithm is theoretically linked to diagnostic constructs associated with International Classification of Diseases (10th revision) and DSM-IV criteria for autism.

Real Life Rating Scale

The Real Life Rating Scale (RLRS) (Freeman, Ritvo, Yokota, & Ritvo, 1986) is a scale used to assess the effects of treatment on 47 behaviors in the motor, social, affective, language, and sensory domains among autistic persons. The RLRS is applicable in natural settings by nonprofessional raters, is rapidly scored by hand, and can be repeated frequently without affecting inter-observer agreement. Data are presented on inter-rater agreement among novice and experienced observers. Instructions for the scale, target behaviors, and definitions are appended to the journal article.

FAMILY ASSESSMENT

These measures focus primarily on aspects of the family. These instruments are used to determine pre- and post-test changes and are not specifically used to tailor the course of individual programming for a family or child.

Behavioral Vignettes Test (BVT)

The Behavioral Vignettes Test (BVT) is a multiple-choice test (20 items) used to evaluate a parent's, school therapist's, or special education teacher's functional knowledge of behavioral principles. The BVT can be used as a pre- and post-test measure of change in persons undergoing training in teaching self-help, social, and play skills. (Baker, 1989)

Child Improvement Locus of Control Scale (CILC)

The Child Improvement Locus of Control Scale (CILC) (DeVellis, DeVellis, Revicki, Lurie, Runyan, & Bristol, 1985) assesses belief about a child's ability to improve. The instrument is based on two research studies to develop and validate the CILC scales. In the first study, 145 parents (average age 37.8 years) of autistic children completed a questionnaire tapping beliefs about their children's improvement. In Study 2, 175 parents of physically ill children were given the CILC items. The following relationships were observed: (a) parental beliefs in child influence increased with child age, (b) belief in external factors (chance and divine influence) was greater among African American parents, and (c) belief in parental influence decreased with illness severity.

Family Adaptability and Cohesion Evaluation Scales III (FACES III)

The Family Adaptability and Cohesion Evaluation Scale (FACES III and FACES IV) (Olson, 1986; 1994) provides measures of perceived cohesion and adaptability of families. This instrument is relatively well researched. It has been used to assess, for example, the differences between "the ideal and the real representation of family" as perceived by parents and adolescent children. FACES has been used to assess marital satisfaction. Combined with the Clinical Rating Scale, a related family assessment instrument, these two assessment tools can be used for making a diagnosis of family functioning and for assessing changes over the course of treatment.

Family Assessment Interview (FAI)

The Family Assessment Interview (FAI) (Koegel, Koegel & Dunlap, 1996) is a simple protocol for collecting information from families in preparation for selecting and designing an intervention plan. Items in this brief instrument are designed to enable a "good contextual fit" for the intervention strategy. Interview data based on family members' ideas and reactions to the function of problem behaviors, support strategies, and issues for implementation are actively solicited throughout the assessment and support plan development process. The family assessment interview focuses on information about the ways in which the family structures its daily patterns and routines. It helps identify the family's successful strategies for addressing problem behaviors. Sources of stress for the family are identified and discussed.

Family Environmental Scale (FES)

The Family Environmental Scale (FES) (Moos & Moos, 1981; Moos, 1974) is an inventory that assesses behavior patterns within the family on subscales, such as control, active-recreational orientation, intellectual cultural orientation, and cohesion. Norms are available on large national samples of distressed families as well as smaller samples of families with autistic children. The FES can be given to parents at the beginning and middle of the child's intervention program. It assesses family dynamics at key points during the intervention process. The questionnaire can be completed by both of the child's parents if both participate in the child's care.

Parenting Satisfaction Scale (PSS)

The Parenting Satisfaction Scale (PSS) (Guidubaldi & Cleminshaw, 1996) facilitates clinical assessment of parent-child relationships. The PSS assists in identifying a troubled parent-child relationship and can be useful in assessing a parent's response to the effect of intervention and, if suggested, conducting family therapy. The PSS is a 45-item standardized assessment of parents' attitudes toward parenting. Scores derived from this scale allow a clinician or researcher to define, compare, and communicate levels of parenting satisfaction in three domains: (a) satisfaction with the spouse's or ex-spouse's parenting performance in the parenting role, (b) the parent's satisfaction with the relationship with her or his own child, and (c) satisfaction with the parent's own performance in the parenting role. To improve family communication and increase empathy toward family members, teachers may have a parent's spouse or children complete the scale as he or she believes the parent would respond. Information derived from family members can then be compared with the parent's own responses to identify areas of concordant or discordant perceptions and determine areas in which clinical intervention could improve relationships. The PSS can be completed for siblings of the child with autism. The PSS can be administered in 20 minutes.

Parenting Stress Index (3rd ed.) (PSI-III)

The Parenting Stress Index (3rd ed.) (PSI-III) (Abidin, 1983) identifies stressful areas in parent-child interactions. It is administered individually and takes 20 to 30 minutes to complete. There is a short form that takes 10 minutes. This screening and diagnostic instrument assumes that the total stress a parent experiences is a function of child characteristics, parent characteristics, and situations that are directly related to the role of being a parent. Child characteristics are measured in six subscales: distractibility, hyperactivity, adaptability, reinforces parent, demandingness, mood, and acceptability.

The parent personality and situational variables component consists of seven subscales: competence, isolation, attachment, health, role restriction, depression, and spouse. The PSI is particularly helpful in assessing early identification of dysfunctional parent-child systems, prevention programs aimed at reducing stress, intervention and treatment planning in high stress areas, family functioning and parenting skills, and assessment of child-abuse risk.

The PSI Short Form is a derivative of the full-length test and consists of a 36- item, self-scoring questionnaire profile. It yields a Total Stress score from three scales: parental distress, parent-child dysfunctional interaction, and difficult child.

Questionnaire on Resources and Stress (QRS)

The Questionnaire on Resources and Stress (QRS) (Holroyd, 1974; 1987) consists of 55 items on 11 scales: parental affliction, pessimism about child development, overprotection/dependency, anxiety about the future of the child, social isolation, burden for members of the family, financial problems, lack of family integration, intellectual incapacitation, physical incapacitation, and need for the care of the child. The QRS contains 285 items in 15 rational nonoverlapping scales. It was administered to parents of 43 individuals with disabilities four to 16 years old and evaluated in an outpatient psychiatry clinic. The QRS is used in research to assess ecological causes of stress and general levels of stress in families. There is a short form of the QRS (see Randall, Sexton, Thompson, & Wood, 1989). Holroyd (1988) reviewed studies that have used the QRS for families with members with disabilities to compare parents of clinical groups with normal controls, parents of children with different clinical conditions, and pre- and postintervention. These studies are examined in terms of the relationship of 15 QRS scales to child variables (e.g., age, degree of disability) parent variables (e.g., marital status, educational level) and family variables (e.g., nationality/culture). It is concluded that the QRS fulfills requirements for an acceptable level of validity.

The Parental Stress Scale (PSS)

The Parental Stress Scale (PSS) (Berry R Jones, 1995) is a newly developed general measure of stress. Analyses of responses completed by 1,276 parents suggested that the PSS is reliable, both initially and over time. Initial evaluation of the PSS showed a stable consistency for assessing stress across parents of differing parental characteristics. The validity of PSS scores was supported by predicted correlations with measures of relevant emotions and role satisfaction and significant discrimination between 129 mothers of children in treatment for emotional-behavioral problems and developmental disabilities compared with mothers of children not receiving treatment. Factor analysis suggested a four-factor structure underlying responses to the PSS.

INFANT/ TODDLER ASSESSMENT

Bayley Scales of Infant Development (2nd ed.) (BSID-II)

New norms were recently developed for the Bayley Scales of Infant Development (2nd ed.) (BSID-II) (Bayley, 1993). The BSID-II allows diagnostic assessment at an earlier age. The BSID-II was designed to identify children who have a cognitive or motor delay and suggests needed forms of intervention. The BSID-II has been renormed on a stratified random sample of 1,700 children (850 boys and 850 girls) ages one month to 42 months, grouped at one-month to three-month intervals, closely paralleling the census statistics on the variables of age, sex, region, race and ethnicity, and parental education. The Behavior Rating Scale (formerly the Infant Behavior Record) was revised in both structure and content. The Mental Scale yields a normalized standard score called the Mental Development Index, evaluating a variety of abilities, including sensory-perceptual acuities, discriminations, and response acquisition of object constancy memory, learning, and problem solving, vocalization, beginning verbal communication, mental mapping, complex language, and mathematical concept formation. The Motor Scale assesses degree of body control, large-muscle coordination, fine motor manipulatory skills, postural imitation, and motor quality.

The Behavior Rating Scale provides information to supplement the Mental and Motor scales. The 30-item scale rates the child's relevant test-taking behaviors and measures attention, arousal, orientation, engagement, and emotional regulation.

Early Coping Inventory

Early Coping Inventory (Zeitlin, Williamson, & Szczepanski, 1988) is an observation instrument to assess the coping behaviors that are used by infants and toddlers in everyday living. Analysis of a child's scores provides information about level of coping effectiveness, style, and strengths and weaknesses. The inventory has 48 items divided into three categories: sensorimotor organization, reactive behavior, and self-initiated behavior. It is designed to be used for children between ages four to 36 months or for older children who function within this developmental range. It is available from Scholastic Testing Service, Inc., Bensenville, Ill.

Mullen Scales of Early Learning (MSEL)

The Mullen Scales of Early Learning (MSEL) (AGS Edition, 1997) assesses early cognitive ability and motor development. This new standardized version of the MSEL combines the old Infant Mullen and the Preschool Mullen into one instrument that allows comprehensive assessment of language, motor, and perceptual abilities for children of all ability levels. Test ages range from birth to five years, eight months. This revised and updated version includes five additional scales, including gross motor, visual reception, fine motor, expressive language, and receptive language. Test scores provide an objective foundation for intervention planning and serve as baseline data for a continuum of appropriate teaching methods and interactions. The MSEL evaluates visual and language abilities at both receptive and expressive levels and provides a framework in which to examine infant development and interactional patterns. This test identifies uneven learning patterns and children who need support (visual and auditory) for weaknesses in reception and memory and indicates when input should be reduced because of sensory overload. The scale helps facilitate appropriate parent/child interactions and assists in identifying the instructional approach, which links the ISP to the IFSP.

The publisher reports that it takes 15 minutes to assess a one-year-old using all five scales, 25-35 minutes to assess a three-year-old and 40–60 minutes to assess a five-year-old. Mullen ASSIST computer software is available for scoring and report writing. It is available from American Guidance Service, Circle Pines, Minnesota.

OTHER ASSESSMENT OPTIONS

Audiometric Assessment

Impairments in auditory processing and hearing acuity should be ruled out before formal intervention procedures begin. Depending on the child's level of communication and awareness, audiological testing should be used to verify that hearing, especially in the speech range, is within normal limits. If the child's active participation in audiological testing is not possible, auditory evoked-response (AER) studies can be performed. Research has shown that in a subgroup of children with autism, AER studies detect significant deviations in auditory processing. In addition, the audiologist will interview the child's parents for information related to hearing ability.

Complete Medical Examination

A comprehensive neurological and physical examination with laboratory tests that include blood and urine screening, thyroid and liver function, and complete blood count (CBC) is recommended to rule out medical conditions that might interfere with a child's ability to learn. Tests used to detect debilitating medical conditions associated with ASD are electroencephalogram (EEG), electrocardiogram (EKG), imaging techniques, and chromosome studies where indicated.

Standardized Videotape Assessment

A critical component of progress assessment is objective behavioral measurement documented by an ongoing videotaped database—a luxury afforded by school laboratory programs. Each child is videotaped daily for five minutes according to a systematic sampling procedure arranged to track children across different activities, times of day, and days of the week. The unique feature of the video database is that there are no contrived observational conditions; children are videotaped at preset times wherever they happen to be, doing whatever they happen to be doing. Videotapes are scored by a highly trained intervention team to obtain objective, reliable measures of language, social, and engagement variables.

Videotaped formal and informal language samples are obtained; they are then evaluated by the speech pathologist to determine age appropriateness of communication in the area of social development.

STANDARDIZED TESTS OF INTELLIGENCE

Differential Ability Scales (DAS)

The Differential Ability Scales (DAS) (Elliott, 1990) measures overall cognitive ability and specific abilities in children and adolescents. It is better suited for intellectually higher-functioning children with autism. The DAS assesses multidimensional abilities in children ages two years and six months to 17 years and 11 months. It is administered individually and takes 45 to 65 minutes for the full cognitive battery. The achievement test takes 15 to 25 minutes to administer.

The 17 cognitive and three achievement subtests yield an overall cognitive ability score and achievement scores. The three achievement subtests are basic number skills, spelling, and word reading. The DAS allows the examiner to explore differences among the various cognitive abilities as well as differences between cognitive abilities and academic achievement. Colorful, manipulative materials enhance the testing for preschoolers. The Preschool Level measures reasoning as well as verbal, perceptual, and memory abilities and is suitable for ages two years and six months to six years. The school-age level contains a variety of tasks suitable for children ages seven years to 17 years and 11 months.

Stanford-Binet Intelligence Scale (4th ed.) (SBIS-IV)

The Stanford-Binet Intelligence Scale (4th ed.) (SBIS-IV) (Thorndike, Hagen, & Sattler, 1986) has a new format and scoring system, mostly new items, and a new national standardization. The SBIS-IV is for individuals ages two years to adult. It provides scores in four areas -verbal reasoning, abstract and visual reasoning, quantitative reasoning, and short-term memory - and a composite score that is equivalent to the Wechsler Scales Full Scale IQ. Standard scores with means of 100 and standard deviations of 16 are available for each of the four areas. The areas are composed of one or more subtests; the exact subtests administered depend on the individual's age and his or her performance. The subtests have a mean of 50 and standard deviation of 8.

Wechsler Intelligence Scale for Children (3rd ed.) (WISC-III)

While retaining the basic structure and content of the revised edition, the Wechsler Intelligence Scale for Children – Third Edition (WISC-III) (Wechslgr, 1991) has updated normative data, improved items and design, and added an optional subtest. The WISC-III includes numerous additional statistical tables and relevant validity information. The WISC-III continues Wechsler's concept of intelligence as a global but multifaceted entity that can be inferred from a child's performance on a series of tasks. It is valuable for psychoeducational assessment, diagnosis, placement, and planning. WISC-III can be used to diagnose exceptionality among school-aged children and has a strong place in clinical and neuropsychological assessment and in research. Like the WPPSI-R, the WISC-III is widely used and generally regarded as the best standardized measure of intelligence. It is available from The Psychological Corporation, San Diego, California.

Wechsler Preschool and Primary Scale of Intelligence (Rev. ed.)

The Wechsler Preschool and Primary Scale of Intelligence (Rev. ed.) (WPPSI- R) (Wechsler, 1989) is a frequently used intelligence test for children from three to seven years of age. It represents the gold standard for assessment for a multitude of situations. In addition, use of the WPPSI-R during preschool years dovetails smoothly with use of the Wechsler Intelligence Scale for Children (Rev. ed.) as children enter school and require reassessment.

The WPPSI-R contains the 11 original WPPSI subtests and an additional performance subtest, Object Assembly, which consists of colorful, appealing puzzles. Animal Pegs (formerly Animal House) and Sentences are now optional subtests. A design-recognition task was added to the Geometric Design subtest so that it now has two parts: Visual Recognition/Discrimination for younger children and Drawing of Geometric Figures for older children. The WPPSI-R provides norms for 17 age groups divided by three-month intervals from three years through seven years, three months. The norms are based on a standardization sample of 1,700 children stratified by age, race, sex, geographic region, parents' education, and parents' occupation. Subtest scaled scores are expressed as standard scores with a mean of 10 and standard deviation of three.

TESTS OF NONVERBAL INTELLIGENCE

Columbia Mental Maturity Scale (3rd ed.) (CMMS-III)

The Columbia Mental Maturity Scale (3rd ed.) (CMMS-III) (Burgemeister, Blum, & Lorge, 1972) is useful in evaluating children who have sensory or motor defects or who have difficulty speaking and, to some extent, reading. The test does not depend on reading skills. It provides age deviation scores (standard scores) for chronological ages between three years and six months and nine years and 11 months. The age deviation scores range from 50 to 150, with a mean of 100 and standard deviation of 16. A second score, the Maturity Index, indicates the standardization age group most similar to that of the child in terms of test performance.

The task is to have the child select the one drawing that is different from the others on each card. However, autistic children may have difficulty understanding the concept of pointing to the "one that does not belong." This untimed test usually takes 15 to 20 minutes to administer and is simple to score. The child is required to make perceptual discriminations involving color, shape, size, use, number, missing parts, and symbolic material. Tasks include: simple perceptual classifications and abstract manipulation of symbolic concepts. The CMMS-III appears to measure general reasoning ability, although there is some evidence that it may be more of a test of the ability to form and use concepts than a test of general intelligence. (Reuter & Mintz, 1970)

The scale provides a means for evaluating intelligence through the use of nonverbal stimuli. It can be useful as an aid in evaluating children with disabilities and may be less culturally loaded than some other intelligence tests. However, the scores obtained on the CMMS-III are not interchangeable with those on the SBIS-IV, WISC-R, or WPPSI-R.

Leiter International Performance Scale (LIPS)

The Leiter International Performance Scale (LIPS) (Leiter, 1948) measures intelligence independent of language ability for children age three years and older. Administration time is 30 to 45 minutes. Because directions are communicated by pantomime, the LIPS is widely used with non-English-speaking subjects, illiterate or disadvantaged individuals, and those with speech, hearing, or other medical disabilities. The LIPS provides activities that foster attention and allow observation of a student's approach to problem solving and his or her emotional reactions. The subject matches blocks with corresponding characteristic strips positioned in the sturdy wooden frame. Level of difficulty increases at each age level. The LIPS yields a Mental Age and IQ data. The LIPS scale has four tests at each year level. The scale has a number of limitations including uneven item difficulty levels, outdated pictures, a small number of tests at each year level, and use of the ratio IQ. The most serious difficulties are the outdated norms, inadequate standardization, and lack of information about the reliability of the scale for various age levels. Because the norms underestimate the child's intelligence, Leiter (1959) recommended that five points be added to the IQ obtained on the scale.

While the LIPS has a number of limitations, it does merit consideration as an aid in clinical diagnosis (rather than as a measure of general intelligence), especially in testing language-handicapped children who cannot be evaluated by the SBIS-IV, WISC-III, or WPPSI-R. However, although the test may be less culturally loaded than some other intelligence tests, there is no evidence that it is a culture fair measure of intelligence.

Merrill-Palmer Scale of Mental Tests (MPSMT)

The Merrill-Palmer Scale of Mental Tests (MPSMT) (Stutsman, 1931) is for children from one year and six months to six years. The MPSMT is widely used as a nonverbal test instrument for assessing visual-spatial skills (e.g., Howlin & Rutter, 1987) and can be used for young autistic children at the beginning of intervention, at 12 months, and at 24 months into the intervention. Visual-spatial skills are an area of strength for many children with autism. The MPSMT enables a more detailed assessment of visual-perceptual functioning than is provided by the BSID-II or WPPSI-R.

Test of Nonverbal Intelligence (2nd ed.) (TONI-II)

The Test of Nonverbal Intelligence (2nd ed.) (TONI-II) (Brown, Sherbenou, & Johnsen, 1990) is a language-free measure of cognitive ability. It measures abstract figural problem solving in children age five years and older. Administration time is 10 to 15 minutes. The TONI-II contains 55 problem-solving tasks that progressively increase in complexity and difficulty. Each item presents a set of figures where one or more of the items is missing. The child with autism must be able to examine the differences among the figures, identify problem-solving rules that define the relationship, and select a correct response.

The TONI-II is a language-free measure of intelligence, aptitude, and reasoning. Because the subject does not have to read, write, speak, or listen during test administration, it is ideal for assessing (a) individuals with speech, language, or hearing impairments; (b) those who have suffered brain injury or have other academic handicaps; and (c) those who do not speak English. Two equivalent forms make the TONI-II ideal for situations where both pre- and postmeasures are desirable.

The TONI-II yields quotient scores and percentile ranks. It was normed on more than 2,500 subjects. Reliability and validity data are provided for normal, mentally retarded, learning disabled, deaf, and gifted subjects.

Universal Nonverbal Intelligence Test (UNIT)

This is a standardized, norm-referenced test for children age 7 – 17 years. The test is designed for children who have speech, language or hearing impairments, color-vision deficiencies, different cultural or language backgrounds, and/or are verbally uncommunicative. Measures include symbolic memory, spatial memory, object memory, cube design, analogic reasoning, and mazes. IT is available from Riverside Publishing Company.

APPENDIX C

Autism Related Assessment References

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APPENDIX D

Autism Related Web Resources

General Autism—Asperger's Information

Autism Society of America
www.autism-society.org
This Web site is the voice and resource of the autism community. Included are many Web site links to ASA chapters.

Online Asperger's Syndrome Information and Support
www.udel.edu/bkirby/asperger/
Designed by parents for family support on issues of Asperger's Syndrome.

Autism Research Institute
www.autism.com/ari/
Links to research on the causes of autism and methods of preventing, diagnosing, and treating autism and other severe behavioral issues of childhood.

Center for the Study of Autism
www.autism.org/contents.html
Located in Salem/Portland, Oregon, the center provides information about autism to parents and professionals and conducts research in collaboration with the Autism Research Institute in San Diego, California. Provides many links and summaries of information in six languages.

Training and Specific Techniques for Services

Cure Autism Now
www.canfoundation.org
A nonprofit organization of parents, clinicians, and scientists dedicated to finding effective biological treatments, prevention, and a cure for autism and related disorders.

Division TEACCH—Treatment and Education of Autistic and Related Communication-handicapped Children
www.teacch.com
The University of North Carolina at Chapel Hill has an educational approach to enable individuals with autism to function as meaningfully and as independently as possible. Additional links provided.

Behavior Analysis
www.behavioranalysis.com
Assists individuals to locate and publicize training opportunities in the field of Behavior Analysis, Education, and Human Services. Links to ABA affiliates are provided.

Geneva Centre for Autism
www.autism.net
Located in Toronto, Canada, a center for developing and teaching effective techniques and provides services for people affected by Autism/P.D.D.

More advanced individuals with Autism, Asperger's Syndrome, and Pervasive Developmental Disorder (PDD).
www.maapservices.org/index.html
Newsletters, conferences, information, and support when individuals are more advanced.

National Alliance for Autism Research
www.naar.org
Families and scientists promoting Biomedical Research in America.

General Resources with Support Services and Information

Yale New Haven Medical Center
www.info.med.yale.edu/
Go to "search" button and type in Autism, Asperger's Syndrome, or any other medical topic for listings and links to thousands of additional items.

U.S. Department of Education—Office of Special Education and Rehabilitative Services
www.ed.gov/offices/OSERS
Information on public education issues, IDEA, legislation, and links to other special education resources.

The Association for Persons with Severe Handicaps
www.tash.org/index.htm
International association of people with disabilities, their family members, other advocates, and professionals fighting for a society in which all people in all aspects of society is the norm.

Asperger Art Forms
www.angelfire.com/inaspergerartforms/
A personal Web page of insights on the life of a man with Asperger's Syndrome and related links.

NICHCY—National Information Center for Children and Youth with Disabilities
www.nichcy.org
National site containing resources, publications, conferences, State resources, and IDEA information. Information is provided on how to search for the subject needed.

Council for Exceptional Children
www.cec.sped.org
International organization dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. Includes resources on topics of Autistic Spectrum Disorder and Pervasive Developmental Disorder.

National Institute of Child Health and Human Development
www.nichd.nih.gov/autism/autism.cfm
A part of the National Institutes of Health, this is one of the primary Institutes doing research into various aspects of autism including its causes, prevalence, and treatments. News releases, publications, research, and funding opportunities related to autism are provided.

Personal Experiences

Asperger Artforms
www.angelfire.com/in/AspergerArtforms
The personal Web page of David Nicholas Andrews, a young man who has Asperger's Syndrome. He provides his story, information about education, and several links to sources that he recommends related to Autism.